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Vol. XIII, No. 6 JUNE, 1924

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

CONTENTS

Frontispiece and Sketch—Sir William Samuel Glyn-Jones 501
Editorial:
Home for American Pharmacy 506
Coöperation of Those Engaged in the Medical Arts and Sciences 507
The Commencements—A Welcome to Recent Graduates in Pharmacy 507
A Study in Pharmacy—Lloyd 508
The Detection of Rosin in Official Resins, Gum-Resins and Balsams—Wirth 520
Studies of the Vitamin Potency of Cod Liver Oils. XII—The Color Reactions of Cod Liver Oil—Holmes 532
A Review of the Literature in Pharmaceutical Botany and Pharmacognosy for 1922-1923 (August 1, 1922-August 1, 1923)—Youngken 536
Bibliography of Pharmaceutical Research—DuMez 547
The Analysis of Nitroglycerin Tablets—Samson 549
Notes on the Variability of Composition of U. S. P. Syrup of Wild Cherry—Kebler and Kunke 551
Composition of Some Mixtures Sold for Making Alleged Genuine Continental Wines—Kebler 552
Window Displays and Their Practical Application in Schools of Pharmacy—Serles 553
The Department of the American Conference of Pharmaceutical Faculties 556
A Neophyte of the Sigma Xi—Arny 558
What Should a Pharmacist Know—Koch 560
Pharmaceutical Formulas 562
Proceedings of the Local Branches 565
Association Business 569
Committee Reports 573
Editorial Notes 575
Obituary 578
Societies and Colleges 579
The Pharmacist and the Law 586
Book Notices and Reviews 587
Advertising—Cover pages 2, 3 and 4, and pp. I–XXII

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The 1924 meetings of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy will also be held in Buffalo, during the week of August 25th.

For Association Roster see pages x, xii, xiv and xvi.

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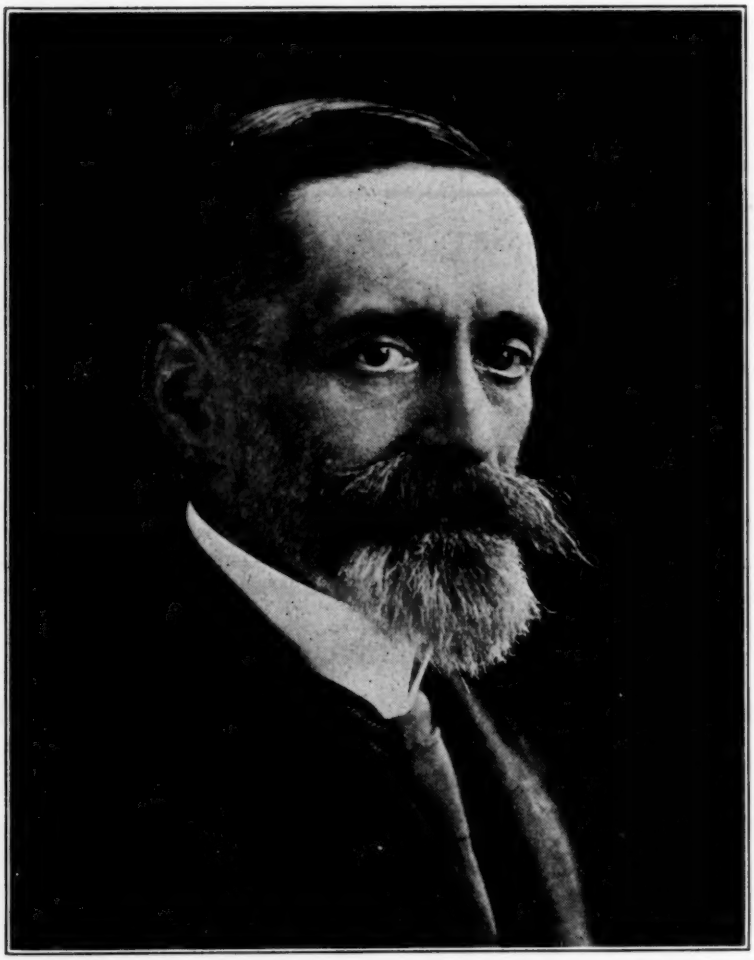

SIR WILLIAM S. GLYN-JONES.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XIII JUNE, 1924 No. 6

SIR WILLIAM SAMUEL GLYN-JONES.

Sir W. S. Glyn-Jones, pharmacist and barrister-at-law, Secretary and Registrar to the Pharmaceutical Society of Great Britain, Secretary to the Proprietary Articles Trade Association since its origin in 1896 and Honorary Member of the American Pharmaceutical Association since 1920, is one of the master-spirits in contemporary British pharmacy, and for the past thirty years has been a dominant personal force in pharmaceutical public life and affairs. The son of Welsh parents, he was born in 1869 in the ancient and renowned city of Worcester, and at an early age was apprenticed in pharmacy. After qualifying as a pharmacist in 1891 he started in business on his own account in the East India Road, a not particularly salubrious district in London bordering on dockland, and married the gracious and winsome lady who in adversity and in prosperity has so loyally shared all his joys and sorrows. They have a family of two sons and two daughters. The eldest son, Mr. Hildreth Glyn-Jones, pharmacist, is a barrister-at-law who has inherited his father's forensic gifts, and is already making good use of them; the younger son, John, is being educated at a public school; the eldest daughter is a graduate of medicine, and the younger one, who has had a distinguished academic career, is on the staff of the Borstal Institution for girls, where the experimental system for the reclamation of young women convicted of offenses against the law is being put to the test. The struggle for existence, which would have absorbed all the energies and subdued and perhaps broken the spirit of the average man, only aroused in the young married pharmacist of the East India Road a grim determination not merely to make his own way in the world, but also to attempt something on behalf of his professional brethren who were suffering from what in the United States used to be known as "scalping" and "scalpers," now generally described as price-cutting. It was in November 1895 that the curtain rose on the opening scene of the first act of the life-drama of our subject. It was then that, single-handed, he issued a modest circular publication yclept the *Anti-Cutting Record* with the object of securing alike for manufacturers, wholesalers and retailers an adequate profit on proprietaries. That the advent of this scheme was not hailed with acclamation is manifest from an editorial comment which ran "We may predict a long career for our contemporary if it is to exist until its purpose is fully accomplished." But for the possibly saving clause "fully accomplished" this forecast, like so many would-be prophecies, has completely miscarried, for the movement that owed its conception and inception to the producer of the *Anti-Cutting Record* has steadily enlarged its borders and grown in strength and effectiveness with the

passing of the years, and is one of the many living monuments to Sir W. S. Glyn-Jones' consummate powers of initiative, moral courage and genius for organization in the face of apathy and antagonism that might well have daunted and discomfited a less resolute and resourceful man. The founding, development and administration as chief executive officer of the P. A. T. A. was only the first of the many signal services for the betterment of pharmacy with which the strenuous subsequent career of Sir W. S. Glyn-Jones has been replete. It would occupy more space than we can spare to recount the series of achievements that stand to his credit and which, singly and cumulatively, attest his high capacity and striking success alike as organizer, administrator, lawyer, whether as member of the Council of the Pharmaceutical Society (1899–1904) in which at first his independent spirit and progressive ideas fluttered the dovecotes, as member for Stepney of the British House of Commons (1911–1918), Alderman and Chairman of the Middlesex County Council, or in his present capacity as Chief Executive Officer of the Pharmaceutical Society to the business and policy of which his unique knowledge and experience of all sides of pharmaceutical life and thought are applied with inexhaustible energy and address. His forensic *nous* and skill were revealed decisively before he was called to the Bar in 1904 by his appeal on a crucial technical point in a case under the Food and Drugs Acts, in which he was defendant, and in the vital decision elicited by him in Farmer *vs.* Glyn-Jones (1902) which restored to British chemists the dormant statutory right to sell "known, admitted, and approved remedies" to the great and legitimate gain of the chemist in retail business, while his textbook on "The Law of Poisons in Pharmacy" (1909) is the only standard work on the subject. As Parliamentary Secretary to the Pharmaceutical Society (1908–1919) Sir W. S. Glyn-Jones did an immense amount of valuable work for pharmacy both in and out of Parliament, including a foremost part in the promotion of advantageous amendments of the Poisons and Pharmacy Act 1908, the insertion in the National Health Insurance Act 1911 of the provision reserving to the pharmacist, unless in exceptional circumstances, dispensing for insured persons, while in the case of the war-time increase in the Medicine Stamp Duties and Spirit Duties his intervention protected chemists from serious inconvenience and heavy loss. Under the second Coalition Government during the war Sir W. S. Glyn-Jones' distinguished political abilities and services were recognized by his appointment as Parliamentary Secretary to Dr. Addison in the Ministry of Munitions, and afterwards under the same chief in the Ministry of Reconstruction, and in 1919 he received the well-merited honor of Knighthood.

One of the most important war-time services rendered by Sir W. S. Glyn-Jones was in connection with the manufacturing and wholesale drug trade which sought his aid in organizing and stabilizing the relations between employers and employees during that trying period. This was so effectively accomplished through the agency of the Drug and Fine Chemicals Association, formed on the advice and with the assistance and carried on under the direction of Sir W. S. Glyn-Jones, that in negotiation with the Drug Trade and Chemical Workers Unions, and by arbitration in case of disputes, industries that were of vital necessity to the national safety were, with the exception of a small unofficial strike, kept in continuous operation in maximum efficiency and output for the duration of the war.

Since his appointment as Secretary to the Pharmaceutical Society, many important developments have taken place, notably the High Court decision in the test case, the effect of which is to prevent the Society as a chartered body from dealing administratively or otherwise with such trade subjects and interests as the regulation of wages, prices and like matters, which are now handled by the Retail Pharmacists' Union, an organization formed as a result of the judicial decision in question, which has taken over the care of the National Health Insurance and other interests formerly looked after by the Pharmaceutical Society. The practical effect of this devolution is that the Society is concentrating on the scientific and professional side of pharmacy, and is developing its School, pharma-

ceutical research, both in its laboratories and through the British Pharmaceutical Conference for which the Society is now responsible; the systematization and control of pharmaceutical education and training, and the adaptation of the examinations to present-day standards and requirements generally. In connection with the special legislation for the control of dangerous drugs as embodied in the Dangerous Drugs Act 1920 and the Dangerous Drugs and Poisons (Amendment) Act 1923 and the regulations thereunder, the Secretary's special knowledge of law and of Parliamentary procedure, and the methods of Departments of State has been of highest value in the combined efforts that have been necessary in every case to have the new laws put into a workable shape. These references are the barest summary of the vast volume and variety of Sir W. S. Glyn-Jones' amazingly strenuous and fruitful life work in and for pharmacy, all sides of which he has touched, inspired and elevated. He is a man of daemonic energy (in the classical not the sinister meaning of that phrase), of an indomitable and indefatigable spirit and steadfastness of aim and purpose that often enable him to accomplish the apparently impossible. In social intercourse whether with his colleagues and acquaintances in official or public life, or in private, among his friends and at home, his inextinguishable zest in everything that touches humanity and his almost boyish relish for the droll side of things makes him a most stimulating and entertaining talker and companion. He is, too, a capital *raconteur*, with an inexhaustible fund of *facetiae* appropriate to every subject and occasion and as an after-dinner speaker he excels in enlivening wisdom with diversions of wit and humor that often set the table in a roar.

It sometimes happens that a man's past is the damnation of his future, but in Sir W. S. Glyn-Jones' case his antecedents constitute unchallengeable credentials and guarantees for even higher prospective service alike for the Pharmaceutical Society and for pharmacy generally. For his natural force is unabated, and his will and power to do and to serve are still at their meridian. In 1911 when he was entertained at dinner by leading representatives of pharmacy on the occasion of his election to the House of Commons, the guest of the evening epitomized his pledge of future service for pharmacy in the words that he would "endeavor to see that no unfair treatment was meted out to our calling, and not only to our calling, but to the small retailers throughout the country." It is in this spirit of ministry to his profession and as protagonist of the principle and cause of justice and fair play to all that Sir W. S. Glyn-Jones has consistently and unceasingly labored ever since, as a retail chemist in the East-end of London he tested in person and endured the burdens and buffetings of a retailer's life. If one had to choose an epigraph appositely descriptive of Sir W. S. Glyn-Jones' character and career, what better could offer than the phrase that he has done so much to render familiar, namely, that by all and everywhere they are both "Known, admitted, and approved."

EDITOR'S NOTE.—The foregoing sketch will interest American pharmacists because the work of Sir William S. Glyn-Jones for pharmacy in Great Britain is well known here; also, the first editorial of the May issue of the JOURNAL A. PH. A. refers to the home of British Pharmacy and hence it is a very timely contribution for which we are indebted to a British pharmacist who has had exceptional opportunities of personal intimacy with, and knowledge of Sir William's work and worth.

EDITORIAL

E. G. EBERLE, EDITOR 253 Bourse Bldg., PHILADELPHIA

HOME FOR AMERICAN PHARMACY.

AN editorial of the *Pacific Drug Review*, of recent issue, states that the movement for establishing a Home for American Pharmacy has its enthusiastic and whole-hearted support and commends it earnestly to the attention of druggists everywhere. "What is proposed," the editorial continues, "is that pharmacy shall not only have a home but that this shall be the visible symbol of that which pharmacy means to the world. The urgent need of a headquarters such as it is now proposed to create has been repeatedly made manifest. But the opportunity now presented is far greater than the mere accumulation of steel, brick and concrete. It is a practical opportunity for united concentration of effort on the part of every drug interest in the country, including every individual. It is a golden opportunity to learn the real value of coöperation. Pharmacy in America will never make the progress that it should until we learn that true progress comes only when each puts his shoulder to the wheel and gives his best for the good of all."

This is the spirit that is evident in all pharmaceutical publications; there has been unanimity in action and a sincerity of purpose that have aided greatly in the promotion of the Headquarters Fund, the present showing of which is highly gratifying. When the work has been accomplished a great deal of credit will be due the pharmaceutical press, because of its enthusiastic and whole-hearted support.

Two of the presiding officers at the Buffalo meeting will be from the Pacific Coast and two from the East—Charles W. Johnson of the American Conference of Pharmaceutical Faculties; Frank E. Mortenson of the National Association of Boards of Pharmacy; L. L. Walton of the House of Delegates, A. Ph. A.; and H. V. Arny, President of the American Pharmaceutical Association. The American Conference of Pharmaceutical Faculties had its beginnings within the American Pharmaceutical Association; as Ex-President James H. Beal has so well said of the A. Ph. A.—"It has not selfishly sought to monopolize the entire field of drug organization, but has encouraged the formation of national associations representing the separate branches of the drug trade, and has cordially joined hands with those divisional organizations in advancing their special lines of work.

"It called into existence the National Association of Boards of Pharmacy that already has done so much to standardize and bring order and system into state board examinations, and to make interstate recognition of certificates general and practicable.

"It created the National Drug Trade Conference, composed of representatives of all national drug trade organizations, that has been so largely successful in adjusting and preventing antagonism between the different branches of the trade, and has afforded the means of presenting the claims of the drug trade as a unit mass at Washington."

Quoting Ex-President L. E. Sayre: "The American Pharmaceutical Association has naturally a unitizing influence. With the establishment of the Home for American Pharmacy, the A. Ph. A. will become to a certain extent automatically

the welder of never-before-connected drug activities—to the advantage of all units involved."

Dr. Arno Viehoever in an editorial of the May JOURNAL A. PH A., p. 396, pointed out that as early as 1841 British pharmacists established a home, when the number supporting the movement was less than a thousand; he also briefly referred to some of the results accomplished. The home for American Pharmacy expresses pride in our own institutions, industries and American pharmacy in general. E. G. E.

COÖPERATION OF THOSE ENGAGED IN THE MEDICAL ARTS AND SCIENCES.

RESEARCH is bringing the laboratories of the Medical, Dental and Pharmacy Schools—the hospitals and the pharmaceutical and chemical laboratories of the industries—into closer relations for more effective work in behalf of humanity, plant and animal life. The coöperation exists, but the fact should be more generally known and impressed. The public as a rightful beneficiary has a right to expect and investigate the coöperation of industries and professions, the service of pharmacies and of hospitals. E. H. Lewinski-Corwin, Ph.D., in a book about to be published, in which important hospital functions are discussed, says: "A hospital is more than a hotel for sick people; it is a social institution. Among its responsibilities that which pertains to the training of physicians, nurses and *other professional workers* is second only to the care and treatment of patients. The graduates of medical schools after the completion of their college course come to the hospitals as internes with the aim of obtaining experience and an opportunity to apply, under competent direction and guidance, the principles of medical science to the treatment of the sick. Unless this guidance be provided, a large part of the opportunity has been wasted, and the scientific attitude toward the problems of disease, which has been instilled in them during their medical course, is transmuted into mere routine performance of tasks.

"The hospital 'history room' should be a repository of carefully recorded medical experience which, when properly analyzed and coördinated, will enrich medical science. The hospital neglects its obligations if it does not provide a statistical service through which scientific correlations of facts can be worked out as a matter of routine by a competent medical statistician."

The points are well presented; our comment is solely for the purpose of having pharmacy recognized in the service. E. G. E.

THE COMMENCEMENTS—A WELCOME TO RECENT GRADUATES IN PHARMACY.

AMONG the many young men who have recently or will soon commence their professional or business life there is a relative number of pharmacists. Every graduate who goes out from an institution teaching pharmacy is either an asset or a liability to it and the profession for which he has been educated—the values may in a way be estimated; they cannot be determined definitely. Colleges or universi-

ties which are largely responsible for the education of these students continue to have more or less of an influence on the lives of those who have now become attached to the profession of pharmacy; at any rate, they are concerned in their welfare and good behavior. The students have been impressed with these facts and encouraged by counsel and advice to uphold the ideals of pharmacy.

We are prone to say that the necessity for adhering to a certain policy or teaching has never been greater; whatever the significance, it is probably safe to say that it is a repeated relative statement of our forefathers—they had their problems which were paramount in their time, and have been solved or thrown aside as faulty; we have ours, some of which disturb us; others are about to be solved, while our activities are productive of others; both our duties and opportunities are in the adjustment of them for our uplift and advancement and the better service of humanity.

The credentials given to the recent graduates in pharmacy not only testify to their educational qualifications, but also to their fitness for assuming professional obligations. The encouragement will be permitted—that they can best carry out the duties assumed by them, achieve success and contribute to the advancement of pharmacy and its service, by coöperating with those who now welcome them as associates and invite them to share in the work of local, state and national organizations. It is expected that many of the novitiates will prefer business to professional activities and so direct their efforts; all of the bodies referred to subserve these interests and within the American Pharmaceutical Association all the members of the represented associations have their "home." E. G. E.

RAILROAD RATES TO THE BUFFALO MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Summer tourist rates are given in Board of Directors Letter, printed in this issue, p. 570. Rates from other cities follow:

Wichita	$68.90	Asheville	$49.85	Memphis	$53.65
Tulsa	65.60	Atlanta	52.85	Mobile	68.45
Oklahoma City	72.35	Augusta	59.20	New Orleans	73.60
Fort Worth	80.30	Charleston	58.23	Savannah	64.33
San Antonio	94.45	Chattanooga	44.95	Tampa	86.10
Galveston	91.00	Jacksonville	72.40	Winston-Salem	45.05
Dallas	80.30	Knoxville	42.40	Birmingham	53.20

Slightly lower rates can be obtained from Chicago and St. Louis on the Wabash, and New York on the Lehigh. Tickets must be validated at Niagara Falls.

A STUDY IN PHARMACY.*

NATURE'S PERCOLATION PROCESSES IN CONNECTION WITH THE FORMATION AND EXCRETION OF DEW, VERSUS ARTIFICIAL PERCOLATION.

(*Continued from p. 422, May issue.*)

BY JOHN URI LLOYD.

* The first part of this contribution by J. U. Lloyd ended on p. 422 of the May number, which please refer to so as to have the continuity. The article is continued on next page.

General Conclusions. The foregoing experiments (1 to 39) collectively point to the conclusions that exuded water of vegetation is important in weight, as well as an air moistener. Also that under different conditions, varying amounts of moisture are liberated, also that different forms of vegetation vary in their exhalations of vapor.[1] Accepting that the amount of vegetation's water of exhalation can be established after these processes, the question arises—How much water is exhaled as dew in the growth of a plant? In this object, we shall, as an introduction, reproduce in part[2] from a contribution printed in 1880.[3]

DEW.

"All are familiar with the bright transparent beads, known as dew, that form upon the grass and other forms of vegetation during spring, summer and autumn, and that disappear each day just after sunrise.

"We are cognizant of the fact that only upon certain nights may we expect a fall of dew; that still, bright, starry or moonlight nights are favorable; that cloudy nights forbid.

"Works upon science inform us that dew is moisture condensed from the atmosphere, writers relying wholly on conditions related thereto for the fact that there is no dew on cloudy nights or when the wind blows. A piece of cold iron or a glass of ice water will condense moisture upon its surface from the atmosphere on a warm day, so in like manner will vegetation at night, when the temperature of the earth's surface falls below that of the overlying atmosphere. This is true, but dew-drops upon the blades of grass are not gathered in this manner.

"Moisture, as we all know, will condense from any atmosphere that is saturated with aqueous vapor, if the temperature be reduced to a sufficient extent. This is according to the law that vapor of water is held in a larger amount by warm air than by cold air, and accounts for the moisture deposited upon inanimate objects when the nights are favorable. This law is the basis for the theory of the dew-drop, and it is generally accepted to apply as a whole. If such be the case, the blades of grass should naturally receive the condensed vapor evenly whether they are growing or are severed from the earth, providing they are in the same locality. All kinds of vegetation should receive the dew in about the same manner, under like conditions. Nor should a modification of this aqueous deposit result when the grass is severed from connection with the earth.

"And yet, dew gathers differently upon different species of grass, but it does not gather upon grass that is freshly severed from the earth until it will condense upon dead leaves and twigs in a similar location. On certain species of grass, dew will be found in the evening, in drops, upon the tip-end of each

[1] Difficulty in making rubber tight around the grass blade may have caused air vapor complication.

[2] *The Christian Standard*, Cincinnati, July 31, 1880.

[3] I must beg the reader's indulgence in case better explanations and better terms of expression now suggest themselves. I might even at this date (1923) do better—for forty years these notes have rested. To the above I will add that Mr. Russell Errett, Editor of *The Christian Standard*, took much interest in these investigations and for him I aimed to make the summaries in a rather popular form.

thrifty blade, before the remainder of the blade is moistened, and before there is moisture upon any inanimate object near, however good a conductor or radiator of heat the latter may be. Upon further observation, it will be found that these drops are continually falling off and are constantly being replaced—time, of course, being necessary for their reproduction.

"It is evident that this water is *not* condensed from the atmosphere, for certain species of grass will be dropping water, while others alongside are dry.

"One species first shows the drop upon the very tip of each blade; another will be covered on the edges with beads, along its entire length. Some herbs and the leaves of certain shrubs will be perfectly dry (this is especially true of evergreens and species of the cactus family) while under like conditions—even with branches and leaves interlaced with them—others will be covered with moisture.

"This form of dew sometimes appears at the tips of the leaves of shrubs which are several feet in height, before it exhibits itself upon others nearer the surface of the earth. During early spring we have seen the high-set leaves of grapevines dropping with this dew, while other members of the spring vegetation near to the earth were scarcely moist, inanimate objects being dry.[1] Can we argue that these exceptions are due to a difference in the radiating or condensing properties of different species of plants?

"Our experiments teach us that, under certain conditions governing these experiments, the moisture condensed from the atmosphere during the night forms but an inconsiderable portion as compared with the *aqueous excretion from the plant.*[2]

"We must distinguish between the dew which condenses from the atmosphere and that which is cast from herbs.

"The larger share of dew upon the grass is excreted by the grass. This can be demonstrated by those who choose to investigate. Examine the grass within the door-yard, early during a clear summer evening, and each tip of thrifty blue grass will be found to hold a round drop—not a dew-drop, if dew is *only* moisture precipitated from the atmosphere."

AMOUNT OF WATER (DEW) EXCRETED BY VEGETATION.

The Dew of Vegetation.

In these experiments (based upon the results of experiments cited) glass tubes of small caliber, with expanded openings, were employed to collect the water of excretion (Fig. 12).

The experiments were made by slipping the very tip of the grass blade through a sheet of wax and then firmly pressing the wax about the blade. The sheet of wax was then pressed against the mouth of a glass tube so that the tip of grass was within the tube. The

[1] The activity of some forms of vegetation, such as the growing grape leaf of springtime, or the young caladium leaf, is such as to liberate water in air not fully saturated with moisture. —J. U. L.

[2] The fact that water flows through the tissues of plants has been a matter of record for upward of two hundred years, and certain works on Structural Botany mention the fact that some leaves may even occasionally throw off drops of water. But in none, to the writer's knowledge, has attention been previously called to the connection between this water and the dew.—J. U. L.

opposite end of the tube was covered with a sheet of wax through which a capillary glass tube with expanded mouth (Fig. 12) was projected, the mouth resting against

Fig. 12.

the tip of grass (see Fig. 10).[1] As the liquid exuded from the grass blade it passed into the tube and in the morning was weighed.

August 19, 1880, four experiments in the open air gave as follows:

8 P.M. to 6 A.M.

1—Weight of water 0.29 gr., weight of grass blade 0.28.
2—Weight of water 0.42 gr., weight of grass blade 0.31.
August 20th, under glass shade; rain all night.
3—Weight of water 0.35 gr., weight of grass blade 0.35.
4—Weight of water 0.59 gr., weight of grass blade 0.60.

These experiments indicate that whether the night be clear or rainy, water-excretive processes continue. Twenty-nine experiments according to this process (the four foregoing included) gave the following results, August 19th to September 1st, inclusive:

		Gr.		Gr.
(5)	Weight of grass	0.35	Weight of liquid in tube	0.28
(6)	Weight of grass	0.17	Weight of liquid in tube	0.27
(7)	Weight of grass	0.29	Weight of liquid in tube	0.28
(8)	Weight of grass	0.21	Weight of liquid in tube	0.25
(9)	Weight of grass	0.36	Weight of liquid in tube	0.51
(10)	Weight of grass	0.17	Weight of liquid in tube	0.52
(11)	Weight of grass	0.10	Weight of liquid in tube	0.10
(12)	Weight of grass	0.32	Weight of liquid in tube	0.30
(13)	Weight of grass	0.23	Weight of liquid in tube	0.62
(14)	Weight of grass	0.18	Weight of liquid in tube	0.26
(15)	Weight of grass	0.17	Weight of liquid in tube	0.22
(16)	Weight of grass	0.31	Weight of liquid in tube	0.47
(17)	Weight of grass	0.18	Weight of liquid in tube	0.31
(18)	Weight of grass	0.33	Weight of liquid in tube	0.32
(19)	Weight of grass	0.38	Weight of liquid in tube	0.22
(20)	Weight of grass	0.46	Weight of liquid in tube	0.19
(21)	Weight of grass	0.41	Weight of liquid in tube	0.22
(22)	Weight of grass	0.29	Weight of liquid in tube	0.39
(23)	Weight of grass	0.40	Weight of liquid in tube	0.53
(24)	Weight of grass	0.32	Weight of liquid in tube	0.28
(25)	Weight of grass	0.38	Weight of liquid in tube	0.50
(26)	Weight of grass	0.25	Weight of liquid in tube	0.25
(27)	Weight of grass	0.31	Weight of liquid in tube	0.50
(28)	Weight of grass	0.25	Weight of liquid in tube	0.54
(29)	Weight of grass	0.41	Weight of liquid in tube	0.43
		7.23		8.76

Remarks. It will be noticed that in the majority of experiments, the weight of water excreted was greater than the weight of the blade of grass. In some instances it amounted to more than twice its

[1] Only very small blades were employed, these being very active. As maturity approaches, the flow of water decreases.

weight, and in one case (No. 10) more than three times its weight. The comparison as a whole shows that 7.23 grains of grass excreted 8.76 grains of water. Let us pass to other forms of vegetation, less troublesome in details of experiment.

Experiments with Caladium. This plant is exceedingly active. So abundant is water of excretion as to necessitate a capacious receptacle instead of a capillary tube. On a hot night the young leaf, as it forces itself from its sheath, if the plant be well watered, excretes water from its tip in a flow of drops. One, timed at 7:30 P.M., threw out 120 drops per minute. In one case, the force was such as to squirt the liquid *in a pulsating stream*, casting it two inches from the orifice of escape. These pulsations were as regular as the beating of the heart.

The amount of water collected in a bottle each night by placing the tip of the leaf in its neck, for fourteen successive evenings, was as follows:

August 23rd (Leaf appeared from sheath)	1 fluidounce
August 24th	$1^3/_8$ fluidounces
August 25th	2 fluidounces
August 26th (Leaf dropped from sheath)	4 fluidounces
August 27th	$4^5/_8$ fluidounces
August 28th	$4^3/_4$ fluidounces
August 29th (Cloudy, hot damp night)	$5^5/_8$ fluidounces
August 30th	$4^7/_8$ fluidounces
August 31st	$4^1/_2$ fluidounces
September 1st	$4^5/_8$ fluidounces
September 2nd (Clear, windy)	$2^1/_4$ fluidounces
September 3rd	$3^1/_2$ fluidounces
September 4th	$3^3/_8$ fluidounces
September 5th	$3^1/_2$ fluidounces

Explanation.—This experiment showed that the young leaf excreted, increasingly, for seven days, then decreasingly. The variations were probably influenced by irregular water supply, as well as variable moisture in the air. Leaves, same size, were weighed to parallel those dropping water. They gave, respectively, $^1/_4$ ounce, $^1/_2$ ounce and $1^1/_4$ ounces at the three stages.

Other Forms of Vegetation. August 16, 1880, young shoot of *Cactus grandiflorus* through a rubber sheet into a glass tube, gave 4.83 gr. water. Growing bud of *Lilium tigrinum* gave 9.04 gr.

Experiment No. 40.—August 16, 1880, 7 P.M. to 6 A.M.

Young shoot of the Cactus grand. through rubber,	6 A.M.	112.44
	7 P.M.	107.61
		4.83
Lilium tigrinum bud,	6 A.M.	227.44
	7 P.M.	218.40
		9.04
Crystal $CaCl_2$ in same sized tube,	6 A.M.	142.12
	7 P.M.	141.90
		0.22

This shows that each specimen excreted moisture—Cactus 4.83 gr., Lilium bud 9.04 gr. The surprising feature of this experiment is the Cactus dew. This

plant has the power of withstanding drought, but yet, under these conditions, exhaled moisture freely. The control experiment the same night showed that the air in a closed tube, size of those employed, gave to calcium chloride 0.22 gr.

Textural Material Also Abstracted.

In connection with the foregoing it occurs that part of the moisture must have been textural water of the grass that, by reason of the more powerful affinity of the calcium chloride, was taken from its substance. The following experiments indicate that such is the case, and that corrections need be made in accordance therewith.

Experiment No. 41.—Eight blades of grass were projected through a rubber cover into a beaker glass containing a watch glass of $CaCl_2$.

7 P.M.	5.10
Almost dry, 6 A.M.	1.15
	8) 3.95
	0.49

Experiment No. 42.—August 17, 1880. Sixteen blades of grass were projected through rubber cover into a beaker glass containing a watch glass of $CaCl_2$, 8 P.M. to 6 A.M., all very nearly dry,

8 P.M.	7.00
6 A.M.	1.90
	16) 5.10
	0.32

Conclusion.—It is seen that one set of 8 blades lost each 0.49 gr. of moisture, the other of 16 blades lost each 0.32 gr. of moisture, the average being 0.40 gr. The average weight of the grass blades was 0.5 gr.

Variations of Experimentation.

August 16, 1880, clear weather. At sundown, leaves of orchard grass were painted with collodion, the entire blades being covered. None were damp at 10:00 P.M., nor did the globules of water burst the collodion film.

Some were painted over the tip only, and these did not exude globules of water from the tip (repeated with like results, Aug. 17th). Some were painted excepting the tip. From the tips of these, globules of water appeared, the same as on adjacent grass (repeated with like results, Aug. 17th).

Experiment No. 43.—One blade covered with coating of collodion was put in vial and cotton stuffed into mouth 42.00
Grass 0.26 ..... 41.92

Moisture in vial 0.08

One blade tip covered with wax was placed in vial 43.73
Grass 0.08 ..... 43.56

Moisture in vial 0.17

One blade *natural* was placed in vial 54.40
Grass 0.13 ..... 54.15

Moisture in vial 0.25

One blade covered, excepting point, placed in vial	47.27
Tip of grass 0.01	47.01
Moisture in vial	0.26

These show that the surface of the grass, as well as the main exit, are active, and that to the water of tip excretion must be added the water of surface exhalation. Each experiment, 8 P.M. to 6 A.M.

Experiment No. 44.—Four vials, top covered with sheet of wax, through which tips of orchard grass, were thrust; two of the blades (1 and 2) having been severed from the stalk.

(1) Severed; 47.01 gr.; no gain.
(2) Severed; 39.00 gr.; no gain.
(3) Grass tip less than 0.01 gr., moisture in vial 0.07 gr.
(4) Grass tip 0.01, moisture in vial 0.57 gr.

The current of supply being interrupted (1 and 2), no *water* is excreted.

Experiment No. 45.—Into two watch crystals were severally placed calcium chloride, each in a beaker glass closely tied over with a sheet of rubber. Time, 7:30 P.M. to 7:00 A.M. Through the rubber sheet of No. 1 a blade of orchard grass was projected. The $CaCl_2$ in the confined air abstracted 0.59 gr. of moisture, that with the blade of grass extracted 1.25 gr. The grass blade weighed 0.5 gr., showing that it excreted more than its weight of moisture. These experiments were repeated as follows:

August 5, 1880, first experiments. Dates of others omitted from notes		(1) Weight of grass. Gr.		(2) Moisture in air.	(3) Total in glass and air.	(4) Excreted moisture.
	A	0.93		0.63	2.53	1.90
	B			1.26	2.14	1.12
	C			0.9	2.23	1.14
	D			1.26	2.14	0.88
	E			0.9	2.23	2.14
	F	1.06	Wire grass	1.43	2.13	0.70
	F	2.18	Orchard grass	1.43	3.06	1.63
	G	0.94	Wire grass	0.36	2.92	2.56
	G	1.32	Orchard grass	0.36	2.76	2.40
	H	0.65	" "	0.19	1.46	1.27
	H	0.95	" "	0.19	2.63	2.44

In like manner a small oleander leaf (weight not recorded) was employed in contrast with a blade of orchard grass.

Moisture in Air.	*Oleander leaf exhaled.*	*Orchard grass exhaled.*
0.20 gr.	3.34 gr.	1.51 gr.

In this experiment the oleander leaf excreted twice as much moisture as did the blade of grass.

Remarks.—The uneven results of these experiments are due to several factors that need be mentioned. The beaker glasses were not uniform in capacity, atmospheric conditions were different, which probably accounts for the variation of Column 2. The varying sized grasses probably also gave up different portions of their structural water by reason of the suction of the dry air influence of the

$CaCl_2$. The total result, however, supports preceding conclusions, to the effect that in humid climates vegetation is a prolific moistener of air.

What Is Dew of Vegetation?

Let us now revert to No. 2 of our original publications on dew, reproducing in part, as follows:[1]

"The rootlets of each clump of grass are constantly absorbing water from the earth, and the grass blades are continually exhaling it into the atmosphere. Water, we may say, is the support of vegetation, but it is not absorbed as pure water. It is charged with soluble salts from the earth, and with its dissolved matters passes on through the plant.

"The cells of the plant seize upon desirable nutritive principles, appropriating them to their own support, as well as to the formation of substances necessary for new cellular tissue and content. In this way the plant is supported, new growth developed, and future plant life provided for. Thus, it is a necessity for the depleted water to escape, and by laws most beautifully adapted, vegetation is enabled to cast off the water which has served the purpose designated.

"Let us now consider some structural conditions of the blade of grass. Running lengthwise throughout it are strings of fibro-vascular bundles. Each apparently extends continuously throughout the entire length of the grass blade imbedded in cellular tissue, which resembles to our eyesight an amorphous mass of green pulp.

"It is unnecessary for our present purpose to enter further into the microscopic structure of plants. Suffice it to say that, through these bundles of fibrous matter, in reality also cellular tissue, and between if not also through, the cells of other parts of the leaf, a constant flow of water (fluid) toward the terminus of the leaf is taking place.[2] At last this escapes, when conditions are favorable, at the apex of the blade of grass where the fibers meet and end. This constitutes mainly the water tears upon the grass blades, which we have been accustomed to call *dew*, and to consider as moisture condensed from the atmosphere.

Fig. 16.

"It is also water of this description that, when conditions are satisfactory, flows from the apices of the leaves, that exudes from the surfaces of the leaves and along the margins of the grass blades, as well as from their surfaces, and that, becoming visible under certain conditions, is known as dew.[3]

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[1] *The Christian Standard*, Cincinnati, July 31, 1880.

[2] I am quite satisfied that counter currents due to osmosis as well as cell activities also prevail. Probably a growing bit of vegetation has a complexity of liquid currents.

[3] Reference is here made to ordinary blue grass (*Poa pratensis*) or the crab grass (*Digitaria sanguinalis*). Under similar circumstances one of the common wire grasses (*Eleusine indica*) remains perfectly dry along the entire length, and it will be some time afterward before the moisture will appear upon this species. The entire upper surface of grape leaves is beaded.

Fig. 16 represents a blade of blue grass (*Poa pratensis*) with a drop of water magnified.

"The sap within the plant has served its purpose. It was absorbed by the rootlets, not as pure water, but as water charged with substances upon which that plant must live.

"From this liquid the various constituents and textures of the plant are produced. As it passes through and around the cellular tissues the cells take from it substances desirable for their support.[1] It thus travels onward in its tortuous journey, carrying plant cell excretions and its own earth-sucked salts to other cells, becoming thus continually more depleted of substances upon which plants live, until at length having served its purposes it is cast off as an exhausted excretion.

Animals like Plants Utilize Their Excretory Water.

"In animals there is also constant circulation, the blood moving in obedience to the action of the heart, and in this case also there is waste and reproduction of both the aqueous part and the other constituents. As in plants, the aqueous surplus must be expelled. When (in plants) it does not evaporate from the stomata (breathing pores) of the leaves, it is thrown off as water and we call it dew. When in animals it does not evaporate from the skin pores, but exudes on its surface, we call it sweat. When in plants the excess is thrown out as water from the tip of the leaf, we call it a dew-drop.[2] In animals surplus water carrying its load of worn-out tissue products is excreted from the bladder.

The Caladium as a Specimen of Plant Activity.

"Let us now pass from the blade of grass to another leaf, the consideration of which has already taken our care (page 512), and which exhibits more forcibly this expulsion of water from vegetation.

"The common large-leafed species of caladium, growing in tropical countries and marshy districts, familiar in some localities under the name of "elephant's ear," is raised in clumps on our lawns for ornamental purposes. It is of succulent growth, demands much water, under favorable circumstances absorbing enormous quantities. This water, entering the roots, is carried upward with considerable force, passing through the leaf stalk, enters the leaf, and, passing through it, escapes at night from the very tip of the leaf. During the day it escapes as vapor from the open stomata of the surfaces of the leaf, which, we are told, open during the warm weather and close when it is cool. They also open more freely in light than in darkness.

"Fig. 17 represents by a transverse section the tip of the leaf, showing the divided, woody fibers and the cavity where they terminate.

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[1] It is generally accepted that the water which is lost from the plant is drawn directly from the root through the fibro-vascular bundles and is not the water of assimilating cells. Yet this cellular tissue of the leaf is connected with the fibro-vascular system through which the water is flowing, and it is probable that, by dialysis, there is an interchange of liquids.

[2] During daylight the cellular tissue of the leaf which contains the chlorophyl is actively engaged in transforming the constituents in the water drawn from the earth, into organized matter, such as starch, sugar, etc. While this is progressing, the myriads of stomata of the leaf are open and exhaling vapor as well as oxygen. This vapor is the water brought by the fibro-vascular system, and the organic constituents produced by the green cells are obtained from it. When the sun's rays are withdrawn, the action of the chlorophyl cells cease, the stomata close, and the water is not freely excreted as vapor. Then it passes on through the bundle of fibers and escapes as dew in the manner we have indicated.

"Each leaf is bounded by a raised margin extending in a circle around the entire leaf, and through this we find continuous woody matter, excepting at the tip, where the threads terminate in a sac which is formed of the epidermis of the leaf puffed up by the pressure of juice beneath; here the water escapes. Upon further examination we find that the ribs of the leaf terminate in the margin before named, and that the fibers of each rib connect with the fibers of the margin of the leaf (Fig. 18). Thus from bulb to the tip of the leaf there is an undivided network of cellular woody matter (fibro-vascular tissue), arteries subdividing into veins and cell capillaries, to again unite to further final excretion. The flow is onward from the root, for if a rib or a leaf margin be broken when dew is being excreted, the part towards the leaf stalk exudes liquid, but not the opposite side.

Fig. 17.

Fig. 18.

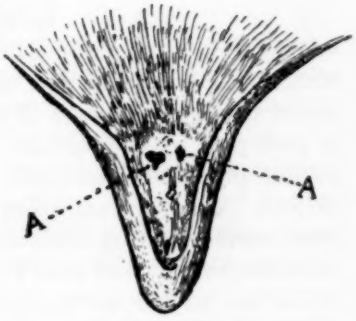

Fig. 19.

"Fig. 19 represents the tip of a caladium leaf magnified several diameters. It shows the orifices burst through the puffed skin of the leaf, from which the drops of water flow in the evening, or when conditions are favorable.[1]

Distinctions between Dew of Vegetation and Dew of Air Condensation.

"When vapor condenses, the result is almost pure water. True, there are some foreign constituents, plant exhalations, traces of gases, some ammonia or carbonate of ammonium; but rain water collected at a distance from a city is very pure.

"A constituent of the water excreted by vegetation which is *never* present in pure dew condensed from the atmosphere, nor in rain water, is sugar or glucose. Experiments placed by the writer upon the water of excretion of different species of plants demonstrate by chemical analysis,[2] in every instance, the presence of grape sugar.

"Some species, notably grasses, yielded this sugar quite abundantly; blue grass (*Poa pratensis*) at one time, during the autumn, excreting so large a pro-

[1] If the caladium be well watered about an hour before sundown, the drops will appear from young leaves shortly after sunset, and continue to flow until sunrise.

[2] Sugar (grape) is detected by several processes. That most used by the writer is known as "Fehling's test;" it depends upon the reduction of a solution of sulphate of copper, whereby cuprous oxide is thrown down in the proportion to the amount of glucose present.

portion of sugar as to render its presence perceptible to the taste. Since cattle prefer grass when it is covered with dew, it seems not unreasonable to suppose that the presence of the sugar may be one of the attractions.

"When the aqueous part of the dew evaporates this sugar is deposited upon the leaves. At certain seasons of the year, usually during autumn, when the leaves as well as texture of the forest trees have lost a portion of their vitality, this sugar may be deposited so abundantly as to attract bees and serve as a source of honey. It is known then under the familiar name "honey-dew.[1] In a Kentucky beech wood I have known the leaves to be so attractive to bees as to make a continuous overhead hum, as they flew from leaf to leaf, sucking the sugar from their surfaces.

Excretions of Poisonous Plants not Contaminated with Poisons.

"As far as my experiments extend poisonous plants, as well as plants possessed of marked characteristics, excrete a fluid apparently *free from deleterious substances.* As an example, the water collected from species of the Arum, of which the well-known Indian turnip (*Arisaema triphyllum*) is a specimen, is perfectly void of acrid principles. The juice of plants, found within the cells of the various structural parts, must not be confused with the fluid which flows through adjacent capillary passages of the fibro-vascular tissue. Possibly, too, water may in part pass by endosmosis, directly into and out of the cells containing water-soluble proximate energetics without carrying their contents beyond their locations. Chew a small piece of a caladium leaf, even a part of a grain—an intense acrid irritating sensation is imparted to the tongue and fauces. Water of excretion which flows from the tip of the leaf at the same time is tasteless. This water has passed through the acrid bulb, the leaf-stalk and the leaf. It has traveled along and through the cell walls of the woody bundles of fibers which extend from the mid-rib to the extremity of the leaf. And yet, it is so pure as to leave a nearly tasteless sediment by evaporation.

"Consider other plants, such as Sanguinaria, that contains in its cells a blood-red, acrid juice; or Hydrastis that is prolific in the bitter alkaloid berberine; the acrid Podophyllum, and poisonous plants generally. So far as I have determined none of their cell constituents (sugar excepted) are carried to the dew-drop orifice. Otherwise vegetation would drip with dyes of many colors and death would lie in the dew of poisonous plants (*Rhus toxicodendron* a question).

SUMMARY.

Pages 407–412 introduce, in a preliminary way, the problem of plant water-excretion, establishing the relationship between moisture in the atmosphere, moisture evaporated from the earth, and moisture exuded by vegetation.

Pages 409–410 locate the principal excretory points of the grasses employed.

Pages 410–411 show that, under favorable conditions, grass excretes "dew-drops" in the daytime.

[1] One form of honey-dew is said to be deposited by an insect. The aphid is an example of an insect sugar excreter. My son, J. T. Lloyd of Cornell University, believes that the honey-dew I have observed is possibly more or less the product of an aphid and not residue of excreted water. He states that at certain times these aphids multiply enormously over the leaves of forest trees and so cover them as to make a drip of their excreted sugar liquid. (Note added 1917.)

Pages 411–414 are devoted to experiments connected with the dew-point temperatures of air strata under the influences of moisture.

Pages 414–416 touch upon some of the general influences of excreted water, known as dew.

Pages 416–420 are connected with temperature variations within slightly separated distances, and the influence thereon of active vegetation and stagnant air.

Pages 420–422 make detailed experiments to establish the proportion of water of excretion, the locality of same—with different forms of vegetation.

Pages 509–510 are condensations of an article published by the author on this subject, Cincinnati, July 24, 1880.

Pages 510–511 give the process by which the exact amount of dew of vegetation was established, together with descriptions of the apparatus employed. One of the objects was to determine the proportion of water excreted by the principal water outlet in the grass, as compared with the weight of the grass.

Pages 511–512 comprise comparative experiments with other forms of vegetation. These may be considered simply as suggestive of opportunities for further investigation.

Pages 512–514 consider the problem of the textural water abstracted, simultaneously, by calcium chloride. These introduce variations of experimentation and processes adapted to various problems suggested by preceding studies.

Pages 514–517 introduce part of another of the three articles published in Cincinnati, July 31, 1880. In this is made the distinction between dew of vegetation, and moisture condensed from the air, with comments concerning the excretory liquids of plants as compared with those of animals, and suggestive ideas regarding the desirability of function researches connected with such phenomena as water excretions from active alkaloidal plants and water-soluble pigments. *These secretions, having passed through (percolated) the plant from root to leaftip, are devoid of color or alkaloid.*

The author now (1923) fully comprehends his inadequacy in 1879, both as concerns mental capacity, lack of information concerning recorded researches, and deficient experimental opportunities. He believes it best, however, not to revise the manuscript. No need is there to record that dissenting research results may have been made by others, better equipped.

Conclusions. A study of the phenomena of natural percolation in growing plants leads me to accept that recondite (life) influences aside from capillarity prevail in and govern the motions and functions of both cellular and intra-cellular liquids.

Juxtaposition of cell envelopes of diversified constitution such as compose films made of deposits of fats, waxes, essential oils and other bodies, prevent and encourage endosmosis and exosmosis; perhaps simultaneously enclosing certain liquids and excluding others.

The complexity of these movements prevent parallel laboratory experiments wherein the fresh (green) vegetable structure is crushed and cell juices intermingled. *No comparison whatever can be made of Nature's percolating process with live plants, and laboratory percolating processes with the same bodies dead and dried.*

The illustrations are made by Mrs. Eda Van Guelpen Pape, from original sketches by the author.

THE DETECTION OF ROSIN IN OFFICIAL RESINS, GUM-RESINS AND BALSAMS.*

BY ELMER H. WIRTH.

Tests for rosin as an adulterant of official resins, gum-resins, balsams, etc., appear in nine monographs in the U. S. P. IX, *i. e.*, those of Asafœtida, Balsam Peru, Balsam Tolu, Benzoin, Guaiac, Resin of Jalap, Resin of Scammony, Oil of Cinnamon and Oil of Cade. Under Balsam of Tolu two methods are given for the detection of rosin, and under Resin of Jalap three, making thus a total of twelve instances in which rosin tests appear in Pharmacopœia IX. No tests for rosin appear in the National Formulary IV.

Of the above-mentioned tests six depend upon the reaction with copper acetate, two depend upon a modification of the well-known Liebermann-Storch reaction, one upon a color reaction with nitric acid, and one upon a similar reaction with sulphuric acid. Two depend on solubility and serve to detect the presence of other substances besides rosin and, hence, are not included in this paper. In the six instances which involve the copper acetate reaction, no two check, there being a variance either in procedure, quantity of materials used, solvents or strength of copper acetate solution. The two instances involving the modification of the Liebermann-Storch reaction are also at variance, the procedure being the same but the final color reaction in one case being red and in the other green.

The problem presenting itself, then, was a three-fold one giving rise to the following questions: "Do the tests for rosin stated in the various monographs of the U. S. P. IX give satisfactory results? Can either the copper acetate method of the Liebermann-Storch reaction be modified in such a way as to give satisfactory results as a general test applicable in all cases, or if not, can a method giving such results be found? If such a method can be found what will be its value in the detection of rosin in other than official resins, gum-resins, balsams, etc.?"

PREPARATION OF SAMPLES.

The samples listed below were prepared using 5% of rosin as an adulterant, (except in the case of No. 2, which contains 20%). This percentage was selected as a probable minimum percentage of adulteration likely to be found.

Sample 1, Guaiac with 5% rosin.
Sample 2, Guaiac with 20% rosin.
Sample 3, Balsam Tolu with 5% rosin.
Sample 4, Resin of Jalap with 5% rosin.
Sample 5, Balsam Peru with 5% rosin.
Sample 6, Sumatra Benzoin with 5% rosin.
Sample 7, Resin of Scammony with 5% rosin.
Sample 8, Asafœtida with 5% rosin.
Sample 9, American Styrax with 5% rosin.
Sample 10, Levant Styrax with 5% rosin.
Sample 11, Venice Turpentine with 5% rosin.
Sample 12, Copaiba with 5% rosin.
Sample 13, Dammar with 5% rosin.
Sample 14, Shellac with 5% rosin.
Sample 15, Powdered Benzoin with 5% rosin.
Sample 16, Powdered Asafœtida with 5% rosin.
Sample 17, Powdered Guaiac with 5% rosin.
Sample 18, Powdered Resin of Jalap with 5% rosin.
Sample 19, Powdered Myrrh with 5% rosin.
Sample 20, Powdered Mastic with 5% rosin.
Sample 21, Powdered Dragon's Blood with 5% rosin.
Sample 22, Powdered Benzoin with 5% rosin.
Sample 23, Powdered Guaiac with 5% rosin.
Sample 24, Powdered Asafœtida with 5% rosin.
Sample 25, Powdered Resin of Scammony with 5% rosin.
Sample 26, Powdered Jalapin with 5% rosin.
Sample 27, Oil of Cinnamon with 5% rosin.
Sample 28, Oil of Cade with 5% rosin.

* Scientific Section, A. Ph. A., Asheville meeting, 1923.

In Samples 1 to 14 (inclusive) attempt was made to obtain as intimate and uniform a mixture as possible. In the cases of Samples 1, 3, 4, 9, 10, 13 and 14, one part of melted rosin was mixed with nineteen parts of the melted material to be adulterated. The mixtures were well stirred for about five minutes when the heat was removed, the stirring, however, being continued until the mixtures congealed. Sample 2 was prepared in a similar manner using 20% of rosin instead of 5%. In the cases of Samples 5, 11 and 12 one part of the melted rosin was mixed with nineteen parts of the material to be adulterated, previously brought to the same temperature as the melted rosin, and the mixtures allowed to cool with constant stirring. Adulteration with rosin did not materially change the appearance of the afore-mentioned samples (1, 2, 3, 4, 5, 9, 10, 11, 12, 13 and 14) and the process of "melting in" the rosin could doubtlessly be resorted to as a means of sophistication. Samples 6, 7 and 8 require special comment.

Sample 6. One part of melted rosin was mixed with nineteen parts of melted Sumatra Benzoin and the mixture allowed to cool and congeal with constant stirring. The Benzoin did not become liquid entirely but an approximately uniform mixture was obtained. After cooling the appearance of the Benzoin was entirely changed and it is doubtful whether "melting in" could be resorted to as a process of adulteration of this drug.

Sample 7. Resin of Scammony refused to become liquid on heating, so nineteen parts of it and one part of rosin were dissolved in as small a quantity of alcohol as possible (with the aid of heat) and the mixture evaporated to dryness on a water-bath, with frequent stirring. Admixture with rosin somewhat changed the appearance of the Scammony resin. If sophistication were practiced with this drug, the rosin would doubtlessly be dissolved in the alcoholic extract of the Scammony Root before that extract is concentrated and would then subsequently be precipitated along with the Resin of Scammony when the concentrated extract was poured into water. The product thus obtained would probably bear a very close resemblance to pure Resin of Scammony.

Sample 8. Asafœtida likewise does not become liquid upon heating, and heating, of course, results in the loss of volatile oil so it is questionable whether a case would occur where the rosin had been "melted in." Sample 8 was prepared by dissolving one part of rosin and nineteen parts of Asafœtida in alcohol. This solution, carrying the insoluble portion of the Asafœtida in suspension, was evaporated to dryness with frequent stirring. The product resulting from this process, of course did not resemble Asafœetida, and sophistication if practiced would hardly be other than mechanical.

Samples 15 to 26 (inclusive) consist of mechanical mixtures of nineteen parts of the material to be adulterated in No. 60 powder and one part of powdered (also No. 60) rosin. The samples were prepared by thorough trituration in a mortar, and repeated sifting. They doubtless represent the most common way in which adulteration is likely to occur. The admixture of 5% of powdered rosin does not alter the appearance of the powdered drugs.

Samples 27 and 28 consist of 5% solutions of rosin in the respective volatile oils.

These samples, then, offered workable material for the application of tests both on simple mechanical mixtures of the powders as well as more intimate mixtures of rosin and the pure drugs.

Where a sample number appears followed by the letter "P," it indicates that the sample used consisted of pure material from the same lot used in preparing the adulterated sample bearing the same number; *e. g.*, Sample 1-P consists of Guaiac from the same lot used in preparing Sample 1.

PRESENT PHARMACOPŒIAL METHODS.

The tests as outlined in the various monographs in the U. S. P. IX were tried with the respective samples and gave the following results. For the sake of brevity the texts of these methods are not repeated here.

TABLE I.

Copper Acetate Method.

Asafœtida:			
Sample 8	+	Sample 8-P	−
Sample 16	+	Sample 16-P	−
Sample 24	+	Sample 24-P	−
Benzoin:			
Sample 6	+	Sample 6-P	−
Sample 15	+	Sample 15-P	−
Sample 22	+	Sample 22-P	−
Guaiac:			
Sample 1	−	Sample 1-P	−
Sample 2 (very faintly green)	−	Sample 2-P	−
Sample 17	+	Sample 17-P	−
Sample 23	+	Sample 23-P	−
Oil of Cinnamon:			
Sample 27	+	Sample 27-P	−
Oil of Cade:			
Sample 28	+	Sample 28-P	−
Balsam Tolu:			
Sample 3	−	Sample 3-P	−

Liebermann-Storch modified

Sample 3 (purple to brown)	−	Sample 3-P − (purple to brown)
Resin of Jalap:		
Sample 4 (light brown)		Sample 4-P (light brown)
Sample 18 (light brown)		Sample 18-P (light brown)
Sample 26 (light brown)		Sample 26-P (light brown)

Nitric Acid Reaction.

Balsam Peru:		
Sample 5 (green)	+	Sample 5-P − (yellow)

Sulphuric Acid Reaction.

Resin of Scammony:		
Sample 7 (red-brown)		Sample 7-P (red-brown)
Sample 25 (red-brown)		Sample 25-P (red-brown)

From the results in Table I it will readily be seen that the tests stated in the present monographs for Asafœtida, Benzoin, Balsam Peru, Oil of Cinnamon and Oil of Cade gave satisfactory results. The test stated in the Guaiac monograph gave satisfactory results except in the cases where the rosin was "melted in." The tests stated in the monographs for Balsam Tolu, Resin of Jalap and Resin of Scammony, however, gave unsatisfactory results. Probable explanations of some of these unsatisfactory results, and further comments on the present pharmacopœial methods will be found further in this discussion.

The second and third parts of our problem, as mentioned before, consisted of finding a suitable method applicable to all cases of adulteration with rosin of the official resins, gum-resins, balsams, etc., as well as the results that would be obtained by the use of such a method with some non-official substances. Results with non-official substances have been tabulated with the official ones in an effort to obtain brevity.

THE COPPER ACETATE METHOD.

One of the oldest and best-known methods for the detection of rosin involves the use of an aqueous solution of copper acetate. This method has been suggested by Parry[1] for use in the detection of rosin in shellac. We also find it included in six of the monographs of the U. S. P. IX, *i. e.*, those of Asafœtida, Balsam Tolu, Benzoin, Guaiac, Oil of Cinnamon and Oil of Cade, although quite an extensive variation exists throughout the six cases. The method depends upon the reaction between abietic acid anhydride, a constituent of rosin, with copper acetate, giving a copper salt of abietic acid soluble in petroleum benzin and imparting to the benzin solution an emerald-green color. The test as usually performed consists of shaking a petroleum benzin solution of the material under examination with an aqueous solution of copper acetate. The liquids are then allowed to separate, the

[1] E. J. Parry, *Chem. & Drug.*, Jan. 31, 1903.

upper or benzin layer being an emerald-green if rosin is present. Although the copper salt of abietic acid is soluble in several solvents immiscible with water, the slight solubility of several of the substances usually adulterated with rosin in petroleum benzin, and the solubility of rosin in it makes that solvent particularly adaptable to this test.

The simplest official form of the copper acetate test, excluding those listed under the volatile oils which will be considered separately at the end of this division, occurs under Guaiac. Here the crushed or powdered sample is macerated in petroleum benzin for three hours, the liquid then being filtered and shaken with an aqueous solution of copper acetate 1–1000. Referring to Table I it will be seen that the test works well enough where the sample consists of a mechanical mixture of the powders, but with samples consisting of a "melted mixture" it is quite unsatisfactory. The objectionable features of the test as given under Guaiac are: (1) the failure to give satisfactory results when rosin is "melted in," even with a mixture containing 20% rosin; (2) the length of time (three hours) necessary for the completion of the test; (3) the concentration of the copper acetate solution. In this connection it might be stated that a copper acetate solution having a concentration of 1–1000 gives a green of slight intensity while one having a 1–200 concentration (as directed under Benzoin in the U. S. P. IX) gives a very brilliant green with the same sample. It might also further be stated that even when using a concentration of 1–200 we were unable to get positive reactions with Samples 1 and 2.

The cause of the failure of the test to work on samples which have the rosin "melted in" seems to be the inability of obtaining, by mechanical means, a powder fine enough to separate particles of rosin for exposure to the solvent action of the benzin, Guaiac itself being practically insoluble in this solvent. (We were, however, as will be seen later, able to get the rosin into solution by trituration.) Parry noted the failure of the copper acetate test having a procedure somewhat similar to to the one under Guaiac, to work with samples consisting of a melted mass of shellac and rosin. He suggested[1] dissolving the entire mass first in alcohol, then adding water, thus precipitating the rosin as well as the shellac in the form of a fine powder which is filtered off, dried and macerated in petroleum benzin, the remainder of the manipulation being performed as above.

A modification of this suggestion has found its way into the present Pharmacopœia and is included in the monograph on Asafœtida. Here 25 mils of an alcoholic solution representing 5 Gm. of Asafœtida are mixed with 25 mils of petroleum benzin in a separatory funnel, 50 mils of water are added and the mixture shaken. The aqueous layer is then drawn off and the benzin layer, after being washed with water and separated, shows a green color (if rosin is present) when shaken with an aqueous solution of copper acetate 1–20. This modification of the copper acetate test gives satisfactory results, the only objection it offers being the length of time for operation which is from 20 to 30 minutes including the preparation of the alcoholic solution. Another perhaps slight objection is the concentration of the copper acetate solution, a concentration of 1–200 giving equally satisfactory results.

The copper acetate method as listed under Balsam Tolu U. S. P. IX involves maceration in carbon disulphide instead of petroleum benzin, and subsequent

[1] *Chem. & Drug.*, Jan. 31, 1903.

shaking out the filtered carbon disulphide solution with copper acetate (1–1000). One of the difficulties here is similar to that met with in Guaiac, *i. e.*, failure to work with samples containing rosin "melted in." As a melted mixture is the only kind likely to be found with this drug the objection of course is an important one. This as well as other objections to the copper acetate method as given in the Tolu monograph may be listed as follows:

(1) Failure to give satisfactory results with samples containing rosin "melted in."

(2) Carbon disulphide is used which occupies the lower layer making color detection difficult on account of reflection from the upper aqueous layer of copper acetate solution.

(3) Time necessary for operation is too long.

(4) Copper acetate solution too dilute.

(5) Balsam Tolu contains free cinnamic and benzoic acids which are soluble in carbon disulphide. These not only interfere somewhat with the reaction between the copper acetate and the abietic acid anhydride of the rosin, but they themselves also react with the copper acetate forming cinnamates and benzoates of copper which precipitate and gradually settle into the carbon disulphide layer masking any color which might be present.

The latter objection is overcome in the case of Benzoin which also contains free cinnamic and benzoic acids. Here the Pharmacopœia directs to shake the benzin solution obtained by maceration with the application of heat, with 10 mils of a saturated solution of $NaHCO_3$. The benzin layer is then washed with water and shaken with copper acetate solution 1–200. This method gives satisfactory results.

The problem then was to see whether the copper acetate method could be modified in such a way as to give reliable results with all samples. Several modifications of the test were attempted, such as variations in solvents, maceration and temperature. It is, however, unnecessary to repeat the results of these experiments here, save to state that the method giving the best results was as follows:

Place 1 Gm. of the sample in a small mortar. Grind or crush the sample, add 10 mils of purified petroleum benzoin and triturate well for from one to two minutes. Filter into a test-tube and add 10 mils of an aqueous solution of copper

TABLE II.

Sample 1	+	Sample 1-P	−	Sample 15	−	Sample 15-P	−
Sample 2	+	Sample 2-P	−	Sample 16	+	Sample 16-P	−
Sample 3	−	Sample 3-P	−	Sample 17	+	Sample 17-P	−
Sample 4	+	Sample 4-P	−	Sample 18	+	Sample 18-P	−
Sample 5	+	Sample 5-P	−	Sample 19	+	Sample 19-P	−
Sample 6	−	Sample 6-P	−	Sample 20	+	Sample 20-P	−
Sample 7	+	Sample 7-P	−	Sample 21	+	Sample 21-P	−
Sample 8	+	Sample 8-P	−	Sample 22	−	Sample 22-P	−
Sample 9	−	Sample 9-P	−	Sample 23	+	Sample 23-P	−
Sample 10	−	Sample 10-P	−	Sample 24	+	Sample 24-P	−
Sample 11	+	Sample 11-P	+	Sample 25	+	Sample 25-P	−
Sample 12	+	Sample 12-P	+	Sample 26	+	Sample 26-P	−
Sample 13	+	Sample 13-P	−	Sample 27	+	Sample 27-P	−
Sample 14	+	Sample 14-P	−	Sample 28	+	Sample 28-P	−

acetate (1–200) to the filtrate. Shake well and allow to separate. A green color in the benzin layer denotes the presence of rosin.

Results obtained with this method are listed in Table II.

COMMENTS ON TABLE II.

The samples containing 5% of rosin and failing to respond to the test were those of Balsam of Tolu, Benzoin, American Styrax and Levant Styrax. These samples as well as the pure samples of the same drugs all gave cloudy or flocculent precipitates with copper acetate. All of these samples contain free cinnamic or benzoic acids, or both, to which the precipitates are no doubt due, and to which the failure of the test is probably due. This suggested that possibly an insufficient amount of copper acetate was present to combine with both the abietic acid and the cinnamic and benzoic acids. The test, however, failed to give positive results when repeated with a 1–20 solution of copper acetate, in which case the concentration of copper acetate was much in excess of the quantity necessary to combine with the acids present. By repeating the method as outlined but replacing the benzin with carbon disulphide Samples 3, 6, 9, 10, 15 and 22 gave positive results in the majority of cases. As mentioned before, the objection to carbon disulphide is that its specific gravity is greater than that of water and the copper salts of cinnamic and benzoic acids formed during the test, settle into it and mask the color reaction. If the test-tubes are left standing over night or until these precipitates have settled completely, the green color is visible in the carbon disulphide layer. This necessitates quite a lapse of time and on the whole is hardly satisfactory.

The problem then was to find a solvent having a specific gravity less than one, giving the same results as carbon disulphide. Of the various solvents tried the best results were obtained with xylene which gave positive results with Samples 3, 6, 9, 10, 15 and 22 and negative results with Samples 3-P, 6-P, 9-P, 10-P, 15-P and 22-P. Precipitates are formed as before but do not interfere with the color reaction, the xylene layer assuming a green color when rosin is present. The success of the reaction seems to depend upon a greater or more rapid solubility of the rosin in xylene.

The success with xylene in the cases of samples containing free cinnamic and benzoic acids suggested it as a solvent to replace petroleum benzin in all cases. This, however, was found to be entirely unsatisfactory as the xylene dissolved many of the resins, gum-resins, etc., which interfered with the reaction when the xylene solution was shaken with copper acetate. The following rather interesting experiments show the results obtained with cinnamic and benzoic acids mixed with rosin, dissolved in xylene and in petroleum benzin when shaken with copper acetate solution 1–200. These results seem to verify the value of xylene in these particular cases, as well as prove the above negative results due to the interference of cinnamic and benzoic acids.

Sample.		Xylene.	Benzin.
Cinnamic Acid	0.100 Gm.	Green	Colorless
Rosin	0.050 Gm.	Floc. ppt.	Floc. ppt.
Benzoic Acid	0.100 Gm.	Green	Colorless
Rosin	0.050 Gm.	Slight ppt.	Slight ppt.

As petroleum benzin gives the most satisfactory results in all cases except those containing free cinnamic and benzoic acids and, as xylene serves as a suitable solvent in these cases, the method was revised to read as follows: "Place 1 Gm. of the sample in a small mortar. Grind or crush thoroughly and add 10 mils of purified petroleum benzin, except with drugs containing free cinnamic and benzoic acids, in which cases the petroleum benzin should be replaced by xylene. Triturate well from one to two minutes. Filter into a test-tube and add 10 mils of an aqueous solution of copper acetate (1–200) to the filtrate. Upon shaking well and allowing to separate, the benzin or xylene layer should not show a green color. (Rosin.)"

COMMENTS ON THE COPPER ACETATE METHOD.

The copper acetate method as finally revised gives satisfactory results and offers a simple operation in a minimum length of time, using only a 1-Gm. sample. It might well be stated at this point that the copper acetate solution should be relatively fresh and should not contain an excess of acetic acid.

It must, however, be remembered that the green color obtained with rosin is also obtainable with other substances such as Copaiba, Venice[1] Turpentine,[1] Pine Tar, etc. Generally, however, with some exceptions, resins containing oxy-acids such as abietic and oxy-copaivic give the green color. The copper acetate method, of course, is not suitable for the detection of rosin in these substances, and they, in turn if present, in substances submitted to the copper acetate test will give the characteristic green reaction. Probability of the latter, however, is perhaps slight and the method as finally revised should be of value due to its embodiment of uniformity and simplicity.

THE VOLATILE OILS.

It was not originally intended to include the volatile oils in this paper but inasmuch as rosin tests appear in the U. S. P. IX under Oil of Cinnamon and Oil of Cade, their mention here can hardly be overlooked. The copper acetate test appears in but two of the volatile oil monographs (see above). The tests as outlined in these monographs as well as the general method outlined in this paper give satisfactory results.[2] It is, however, hardly advisable to recommend the general method in the case of volatile oils, as these oils due to their liquid nature can readily be shaken with petroleum benzin, the solution, if the oil is miscible, or the benzin layer, if immiscible, filtered and shaken with copper acetate solution. The 1–200 concentration of copper acetate solution, however, is recommended for these tests rather than the 1–1000 as directed under Oil of Cinnamon or the 1–100 as directed under Oil of Cade.

An experience somewhat aside from this paper yet worthy of mention at this point is as follows: During our experiments we noticed that Oil of Cinnamon adulterated with rosin sometime previous and kept in a warm place did not lend itself subject to the detection of the rosin by either the copper acetate method or the Halphen color test to be mentioned later. There probably is a reaction between the abietic acid anhydride and the cinnamic aldehyde of the oil, the compound formed (which readily crystallizes out) not giving the characteristic reactions of abietic acid anhydride. It is our hope to investigate this reaction in the near future.

[1] See Table II. Samples 11-P and 12-P.
[2] See Table II. Samples 27 and 28, also 27-P and 28-P.

Oil of Cade also offers a rather peculiar situation which might well be mentioned at this point. Oil of Cade is more or less variable as to composition, the greater part of it usually being soluble in petroleum benzin. The filtered benzin solution, however, becomes very dark brown or often black when shaken with copper acetate solution. If after shaking with copper acetate solution, the benzin solution is diluted with an equal volume of benzin, the green color, if rosin be present, can readily be seen. If, however, the benzin solution is diluted with an equal volume of ether, the green color, if rosin be present, is brought out much more intensely. With pure Oil of Cade the color is brown. The U. S. P. IX directs ether as the diluent, and the success it offers does not warrant the inclusion of Oil of Cade under the general method.

It must, however, be remembered that Oil of Cade is more subject to adulteration with Pine Tar than with rosin.[1] Pine Tar also gives the characteristic green color with copper acetate.

There seems to be no reason for rosin tests appearing in but two of the official volatile oil monographs, as the others, under which no such tests appear, lend themselves to adulteration equally as easily as Cinnamon or Cade. Adulteration of the volatile oils with rosin, however, is perhaps very rare, rosin oil being the more frequent adulterant.

Rosin oil is usually prepared by the distillation of melted rosin. In its crude state it consists largely of hydrocarbons and some resin acids chiefly abietic. Such an oil if used as an adulterant can readily be detected by the copper acetate method. Rosin oil, however, is sometimes purified by distillation over alkali where the resin acids are removed, and such an oil consequently cannot be detected by the copper acetate method. This, of course, is an important point to be borne in mind when stating that a test is suitable for both rosin and rosin oil.

Inasmuch as rosin is probably only a rare adulterant of the volatile oils, their mention here has been brief.

THE LIEBERMANN-STORCH REACTION.

Perhaps the best-known method for the qualitative detection of rosin in admixture with other resins is the Liebermann-Storch method, sometimes also known as the Storch-Morawski method. This method consists of treating a small portion of the sample (about 0.1 Gm.) with acetic anhydride, the acetic anhydride solution being subsequently cooled and separated either with a pipette or by decantation and placed in a test-tube. Strong sulphuric acid is then allowed to flow gently down the side of the tube. At the junction of the two liquids a violet ring will immediately be formed if rosin is present; the color, however, is only transient and often disappears within thirty seconds or less, becoming a reddish brown. Perhaps a more satisfactory way of performing the test is to place the acetic anhydride solution into one of the cavities of a porcelain color-reaction plate, adding the sulphuric acid by means of a glass rod. The color changes may readily be seen against the white background and consequently be more closely observed. Although the Liebermann-Storch method is used quite extensively for the detection of rosin in shellac, etc., there has been some dissatisfaction expressed regarding its results.[2] These objections con-

[1] C. T. Bennet, *Phar. Jour.*, Vol. 107, p. 166.

[2] *Jour. Ind. Eng. Chem.*, 3, 86. *Orig. Com. 8th Int. Cong. Appl. Chem.*, XII, 106.

sist largely of its lack of sensitivity which with shellac is about 2%, the rapid disappearance of the violet color and also because cholesterol and other substances give similar color reactions to that obtained with rosin.

A modification of the Liebermann-Storch reaction has found its way into the present Pharmacopœia and may be found under Balsam Tolu and Resin of Jalap. Here, however, the acetic anhydride is replaced with glacial acetic acid and the color of the entire solution rather than of a "ring" observed. As mentioned before in this paper these pharmacopœial tests failed to give satisfactory results.

The samples mentioned before in this paper were submitted to the Liebermann-Storch reaction. Both the porcelain plate and the test-tube variation were used and the results checked against each other. The test was also repeated using glacial acetic acid as the solvent. As the results of the latter did not check in all cases with the results obtained with acetic anhydride, they have been tabulated separately. Average results of several trials are given as follows:

TABLE III.

Abbreviations.

b.	brown	p.	purple	v.	violet
bl.	black	pi.	pink	tr.	trace
g.	green	r.	red	f.	faint or faintly

Where two letters appear the first should bear the suffix "ish," *i. e.*, g. b. greenish brown. A dash (-) signifies a change in color in less than 60 seconds, the colors being given in the order of their occurrence.

Sample Number.	Acetic anhydride.	Acetic acid.	Sample Number.	Acetic anhydride.	Acetic acid.
1-P	g. tr. v.	g. tr. v.	1	g.-v.-b.	g.-v.-b.
2-P	g. tr. v.	g. tr. v.	2	g.-v.-b.	g.-v.-b.
3-P	p.-b.	p.-b.	3	p.-b.	p.-b.
4-P	no color	no color	4	f. p.	no color
5-P	g.-p. b.	g. p.-p. b.	5	r. b.-g. b.	r. b.-g. b.
6-P	v.-b.	r.-b.	6	v.-b.	r.-b.
7-P	f. b.	no color	7	f. v.	no color
8-P	g.-b.	g.-b.	8	g.-r. b.	g.-b.
9-P	v.-g. b.	r.-r. b.	9	v.-r. b.	g.-b.
10-P	v.-r. b.	g. b.-b.	10	v.-r. b.	f. v.-r. b.
11-P	blue-bl.	deep v.	11	blue-bl.	blue-p.
12-P	r.p.-bl.	deep v.	12	r. v.-bl.	r. v.-b.
13-P	r.-v.	r. b.	13	v.-r.	b.
14-P	no color	very f. b.	14	f. v.-b.	no color
15-P	v.-r. b.	v.-r. b.	15	v.-b.	r. b.
16-P	f. v.-b.	b.	16	f. v.-b.	b.
17-P	f. v.-g. b.	f. v.-r. b.	17	v.-g. b.	b.-r. b.
18-P	no color	no color	18	f. pi.	no color
19-P	b.-f. p.	b.	19	r.-b.	r. b.
20-P	v.-b.	b.	20	v.-b.	b.
21-P	r.-v.	r. v.	21	r.-v.	v.
22-P	v.-b.	f. v.-f. b.	22	v.-r. b.	f. r.-r. b.
23-P	g.-b.	f. v.-g. b.	23	b.-g. b.	b.
24-P	f. g.-b.	f. g.-b.	24	f. g.-b.	b.
25-P	no color	no color	25	f. p.-f. b.	f. b.
26-P	no color	no color	26	f. p.-f. b.	no color
27-P	v.-p. bl.	b.	27	v.-bl.	f. v.-b.
28-P	v.-b. bl.	f. v.-b.	28	v.-b.	f. v.-b.

As may readily be seen from the above results, the Liebermann-Storch reaction is not at all suitable for the detection of rosin in the official resins, gum-resins and balsams. In some cases it might, however, serve to advantage as a confirmatory test. In several of the cases the color reactions of the pure drugs themselves so closely simulate that of rosin, that it is impossible, of course, to detect the presence of rosin in them. In some others where 5% rosin is present the characteristic violet color fails to appear, so taken as a whole the Liebermann-Storch test is entirely unsatisfactory for pharmaceutical work.

Another item which might be observed is the frequent variance in results obtained by the use of acetic anhydride from those obtained by the use of acetic acid. Apparently the two solvents are not interchangeable in this method, as might be supposed from the Pharmacopœia.

HALPHEN COLOR TEST.

A method rapidly gaining favor, especially in the varnish industry, consists of the use of Halphen reagent. This color reaction originally devised by Halphen for the detection of rosin oil in mineral oil, was pointed out by Foerster[1] to lend itself readily to the detection of rosin in other resins. Hicks[2] improved the technique of the method, and as revised by him it is quite simple of execution, gives very characteristic color changes within a few minutes and is extremely sensitive detecting the presence of 0.5% of rosin admixed with shellac, or even smaller quantities if the rosin is first separated with petroleum benzin.

The Halphen reagent consists of two solutions, *viz.*,

Solution A.	Solution B.
Phenol 1 part (by volume)	Bromine 1 part (by volume)
Carbon tetrachloride 2 parts (by volume)	Carbon tetrachloride 4 parts (by volume)

The samples mentioned before in this paper were submitted to this test, the procedure being essentially that suggested by Hicks. A small quantity of the sample (powdered) is dissolved in 1–3 mils of Solution A. This solution is then poured into one of the cavities of a porcelain color-reaction plate, until it just fills the depression, a portion of the solution soon spreading over the flat part of the plate. If some of the carbon tetrachloride is lost through evaporation, a drop or two may be added as the spreading over the flat part of the plate facilitates the observance of the color changes. Immediately a few drops of Solution B are placed in an adjacent cavity of the plate and the bromine vapors evolved allowed to impinge upon the surface of the solution in the other cavity. This may be facilitated by blowing a gentle current of air from B towards A, or the two cavities may be covered by a small bell-jar or watch glass. The color changes begin immediately with the contact of the bromine vapors and are best observed on the flat portions of the plate. The colors last long enough for satisfactory observation, the changes, however, being over within five or ten minutes.

Rosin itself gives a very intense reaction, being first green, then changing rapidly to blue and violet. The violet remains for about one or two minutes and then changes to purple, finally becoming a deep indigo or nearly black.

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[1] *Ann. chim. anal.*, 14, 14.

[2] *Jour. Ind. Eng. Chem.*, 3, 86.

Most of the resins, gum-resins, balsams, etc., give characteristic reactions although if 5% rosin is present, as will be seen from the tabulation below, its color reactions are so intense that the color reactions of the drugs are completely masked, the characteristic rosin colors standing out very prominently, It might well also be stated that small quantities of water, alcohol or ether interfere with the sensitivity of this test. Results obtained by submitting our samples to this test are tabulated below.

TABLE IV.

Sample 1-P. First pink, then changing rapidly to red and finally becoming brown.

Sample 1. First green, then changing rapidly to violet and then slowly to brown.

Sample 2-P. Same as Sample 1-P.

Sample 2. First green, then changing rapidly to violet, then slowly through purple and finally becoming a deep indigo.

Sample 3-P. First pink, then rapidly violet and finally a deep purple.

Sample 3. First blue, then a greenish blue, finally a very deep olive-green.

Sample 4-P. Yellow, then gradually changing to brown.

Sample 4. First blue, then greenish blue, changing to violet and finally a light purple.

Sample 5-P. First green, then an olive-green, finally becoming brown.

Sample 5. First green, then blue, gradually changing to a blue-green and finally becoming a deep purplish black.

Sample 6-P. First red, then gradually changing to reddish brown and finally becoming a dark reddish brown.

Sample 6. Blue, rapidly changing to violet and finally becoming a deep purple.

Sample 7-P. Pink, then light brown, very gradually changing to a slightly darker shade of brown.

Sample 7. Blue, rapidly changing to violet and finally becoming a deep purple.

Sample 8-P. Slowly light blue which only becomes slightly darker on standing.

Sample 8. Blue, rapidly changing to violet and finally becoming purple.

Sample 9-P. First brown, then gradually changing to green and finally becoming a deep greenish brown.

Sample 9. First blue, then gradually becoming a darker blue and finally a deep violet.

Sample 10-P. Green, slowly changing to a deep greenish brown.

Sample 10. Blue, rapidly changing to a darker blue and finally a deep violet.

Sample 11-P. Blue, changing to violet and finally a deep purple.

Sample 11. Blue, changing to violet and finally a deep purple.

Sample 12-P. Red, rapidly changing to reddish brown and finally a deep reddish purple.

Sample 12. Red, rapidly changing to reddish brown and finally a reddish brown.

Sample 13-P. Lilac, gradually changing to a light lilac-brown and finally a deep puple.

Sample 13. Blue, changing rapidly to violet and finally a deep purple.

Sample 14-P No color reactions.

Sample 14. Blue, changing rapidly to violet and finally to a deep purple.

Sample 15-P. Pink, gradually becoming reddish brown.

Sample 15. Blue, changing rapidly to violet and finally a deep purple.

Sample 16-P. Slowly light blue which only becomes slightly darker on standing.

Sample 16. Blue, rapidly changing to violet and finally becoming purple.

Sample 17-P. Blue-green, rapidly changing to red and finally reddish brown.

Sample 17. Green, changing rapidly to violet and finally becoming reddish brown.

Sample 18-P. Yellow, gradually changing to brown.

Sample 18. First blue, then greenish blue and finally a light purple.

Sample 19-P. Pink, gradually changing to reddish brown.

Sample 19. Blue, changing to violet, finally becoming purple.

Sample 20-P. Pink, gradually becoming reddish brown and finally dark brown.

Sample 20. Blue, changing rapidly to violet and finally becoming purple.

Sample 21-P. Red, changing to reddish brown. (The solution itself is pink.)

Sample 21. Blue, rapidly changing to violet and finally becoming purple.

Sample 22-P. First red, then changing to reddish brown and finally becoming a dark reddish brown.

Sample 22. Blue, rapidly changing to violet and finally becoming purple.

Sample 23-P. Blue-green, changing quite rapidly to violet and finally becoming reddish brown.

Sample 23. First green, then changing through violet to purple and finally becoming reddish brown.

Sample 24-P. Slowly light blue which only becomes slightly darker on standing.

Sample 24. Blue, changing rapidly to violet and finally becoming purple.

Sample 25-P. Pink, then light brown, gradually changing to a darker shade of brown.

Sample 25. Blue, then rapidly violet and finally purple.

Sample 26-P. First yellow, then gradually changing to brown.

Sample 26. First blue, then rapidly changing to bluish green and finally becoming light purple.

Sample 27-P. Yellow, gradually changing to greenish brown.

Sample 27. Blue, changing rapidly to violet and then becoming a deep purple.

Sample 28-P. Blue, changing rapidly to violet and finally becoming deep purple.

Sample 28. Same as 28-P.

It must be remembered that the intensity of the colors is somewhat dependent upon the concentration of the sample in Solution A. However, it will be observed that wherever rosin is present, except in Samples 11, 12 and 28, its color reactions render it easily detectable, especially after a little experience in the application of the test. Although the method does not give satisfactory results with Copaiba, Venice Turpentine and Oil of Cade, it nevertheless serves as a reliable reaction in the large majority of cases, and in these cases serves very satisfactorily as a general test.

CONCLUSIONS.

Methods for the detection of rosin as stated in their respective monographs in the U. S. P. IX give satisfactory results with samples of the following adulterated with 5% of rosin: Asafœtida, Benzoin, Balsam of Peru, Oil of Cade and Oil of Cinnamon. Tests stated under Guaiac, Balsam of Tolu, Resin of Jalap and Resin of Scammony, however, do not give satisfactory results with corresponding samples adulterated with 5% of rosin.

The copper acetate method as revised in this paper and the Halphen color test give satisfactory results with the above-named samples (excepting Oil of Cade with the Halphen color test) and serve very well as general tests for the detection of rosin in these drugs.

Both methods also give satisfactory results in the detection of rosin in the following materials some of which are official: American Styrax, Levant Styrax, Dammar, Shellac, Myrrh, Mastic, Dragon's Blood and Jalapin. They do not, however, give satisfactory results with Balsam of Copaiba and Venice Turpentine, the presence of resin acids, similar to abietic acid, in these particular drugs, probably being the cause of the failure.

There is a question as to which of the two methods, the copper acetate method or the Halphen color test, is to be preferred. For general pharmaceutical testing, however, the writer recommends the former, due to its simplicity, the fact that only one reagent is necessary, and also that previous experience is hardly necessary to detect the color change. In the case of Oil of Cade, however, the modification of the copper acetate method as it exists in the present Oil of Cade monograph is recommended on account of the peculiar nature of Oil of Cade; this being the only exception to the rule.

In conclusion, the writer takes this opportunity to thank Professor E. N. Gathercoal for his valuable suggestions offered during the progress of this work.

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STUDIES OF THE VITAMIN POTENCY OF COD LIVER OILS. XII—THE COLOR REACTIONS OF COD LIVER OIL.

BY ARTHUR D. HOLMES.

In view of the fact that the U. S. Pharmacopœia has so-called color tests for cod liver oils, it has seemed of interest to check up these tests on crude fish liver oils of known origin. The results which have been obtained with a number of oils are herein reported.

Referring to Group A, it will be noted that cod liver oils Nos. 4, 5, 16, 19, 78, tested with sulphuric acid, did not give uniform color reaction. Also the results obtained with dog fish, hake, pollock and halibut were so much like some of the results obtained with cod liver oil that without a check test, it would be difficult to say definitely whether these liver oils came from cod fish or not. The situation as regards the nitric acid tests, Group B, is quite similar to the results with the sulphuric test.

In order to obtain information concerning the color reaction of the average market, medicinal oil, twelve samples of Norwegian oil were subjected to the sulphuric and nitric tests. The results obtained are reported under Groups C and D, respectively. As will be noted from these results, the nitric acid test was not exactly uniform for all the Norwegian oils. The lack of uniformity is even more pronounced in the case of the sulphuric acid test.

Inasmuch as the results with the Norwegian oils appeared to be more uniform than with the crude oils produced in our laboratory, it seemed of interest to obtain data as to the color reaction of our own medicinal (cold pressed) oils. The results are reported under Groups E and F of these tests. As will be noted, there is more uniformity in these results than in those of the Norwegian oils.

It is interesting in this connection to note that Fuller has reported,[1] "The figures and the color tests together are not limited to cod liver oil, but will apply equally well to carefully refined oils from other fish livers." Lewkowitsch[2] states, "The characteristic violet color reaction of liver oil is decreased considerably with the improvement in the production of the oil." This would naturally be expected since the color reaction is dependent upon some of the products of decomposition of liver tissues.

For the purpose of obtaining information concerning the effect of light, air and moisture on the color reaction of cod liver oil, sixteen samples of cod liver oil of identical source were stored for six months under the conditions noted for Groups G and H. The sulphuric and nitric color tests show that light, air and moisture cause some change in cod liver oils during a period of six months.

The general conclusion to be drawn from these results seem to be that the color tests are not sufficiently reliable to serve as a means of identifying cod liver oil, but vary according to the conditions under which the liver oils have been manufactured and stored. Even although the data are inadequate, it appears that liver oils carefully prepared from fresh livers from fish other than cod will give tests identical with those of cod liver oil prepared under comparable conditions.

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[1] Henry C. Fuller, "Chemistry and Analysis of Drugs and Medicines," John Wiley & Sons, 1920, p. 921.

[2] Lewkowitsch and Warburton, "Chemical Technology and Analysis of Oils, Fats and Waxes," Macmillan & Co., 1922, p. 448.

CRUDE FISH LIVER OILS PREPARED UNDER LABORATORY CONDITIONS.

COD LIVER OIL COLOR TEST.

Sulphuric Acid Test.[1]—A solution of 1 drop of the oil in 1 mil of chloroform when shaken with 1 drop of sulphuric acid acquires a violet-red tint, gradually changing to reddish brown.

	Group A—Laboratory Sample No.	Results.
Codfish	4	Violet-blue, gradually changing to reddish brown
"	5	Light green-blue, gradually changing to violet-blue, and then to reddish brown
"	16	Light blue, gradually changing to violet-blue, to reddish brown, and then to greenish brown
"	19	Dirty brown at once
"	78	Light brown, gradually changing to violet-blue, to reddish brown, and then to greenish brown
Dog Fish	77	Light blue, gradually changing to red-violet, and then to reddish brown
Hake	14	Light blue, changing to violet-blue, to reddish brown
Pollock	15	Light green, changing to reddish brown
Halibut	18	Light blue to dark blue to purple, then to dark, dirty green

Nitric Acid Test.[1]—Allow 2 or 3 drops of fuming nitric acid (specific gravity about 1.44) to flow alongside of 10 or 15 drops of the oil contained in a watch glass; a reddish or purplish color is produced at the zone of contact. On stirring the mixture with a glass rod, this color becomes bright rose-red (distinction from seal oil, which shows no change in color, and from other fish oils, which become blue).

	Group B—Laboratory Sample No.	Results. At zone of contact.		After stirring.
Codfish	4	Purple		Reddish brown
"	5	Dark purple		Brownish green
"	16	Purple	to	Rose-red to light reddish brown
"	19	Dark purple	to	Reddish brown
"	78	Light blue	to	Light purple to reddish brown
Dog Fish	77	Purple-blue	to	Blue to brown to reddish brown
Hake	14	Light purple-blue	to	Dark purple-blue to brown
Pollock	15	Light purple-blue	to	Dark purple-blue to brown
Halibut	18	Reddish violet	to	Dark bright blue to dark green

NORWEGIAN COD LIVER OILS.

Sulphuric Acid Test.

Group C—Laboratory Sample No.	Results.
8	Light violet to red-violet to reddish brown
9	Light blue to red-violet to light green-brown
10	Light blue to blue-violet to red-violet to reddish brown
11	Light brown quickly to reddish brown
12	Light brown quickly to reddish brown
26	Light blue to blue-violet to red-violet to reddish brown
37	Light blue to blue-violet to red-violet to reddish brown
43	Light blue to blue-violet to red-violet to reddish brown
44	Light blue to blue-violet to red-violet to light reddish brown
80	Light blue to blue-violet to red-violet to reddish brown
90	Light blue to blue-violet to red-violet to reddish brown
Vial	Light blue to blue-violet to red-violet to reddish brown

[1] Pharmacopœia of the United States. IX. (Revision.) P. Blakiston's Son & Co. P. 297.

Nitric Acid Test.

Group D—Laboratory Sample No.	Results. At zone.	After stirring.
8	Light pink	Rose color to reddish brown
9	Light pink	Rose color to reddish brown
10	Light pink	Rose color to reddish brown
11	Light brown	Reddish brown
12	Light brown	Reddish brown
26	Light pink	Rose color to reddish brown
37	Light pink	Rose color to reddish brown
43	Light pink	Rose color to reddish brown
44	Light pink	Rose color to reddish brown
80	Light pink	Rose color to reddish brown
90	Light pink	Rose color to reddish brown
Vial	Light pink	Rose color to reddish brown

COLD PRESSED COD LIVER OIL—DOMESTIC.
(Prepared under plant conditions.)

Sulphuric Acid Test.

Group E—Laboratory Sample No.	Results.
17	Blue to dark blue to purple to red-violet to reddish brown
22	Blue to dark blue to purple to red-violet to reddish brown
32	Blue to dark blue to purple to green-brown
34	Blue to dark blue to purple to green-brown
73	Blue to dark blue to purple to green-brown
83	Blue to dark blue to purple to green-brown
84	Blue to dark blue to purple to green-brown
100	Blue to dark blue to purple to green-brown

Nitric Acid Test.

Group F—Laboratory Sample No.	Results. At zone of contact.	After stirring.
17	Purple	Blue-violet to reddish brown
22	Light violet	Red-violet to reddish brown
32	Light violet	Red-violet to reddish brown
34	Light violet	Red-violet to reddish brown
73	Light violet	Red-violet to reddish brown
83	Light violet	Red-violet to reddish brown
84	Light violet	Red-violet to reddish brown
109	Light violet	Red-violet to reddish brown

SAMPLES OF COD LIVER OIL NO. 17 SUBJECTED TO VARYING CONDITIONS OF LIGHT, HEAT, MOISTURE AND AIR, BY STORING FOR SIX MONTHS UNDER THE FOLLOWING CONDITIONS.

Laboratory Sample No.	Storage conditions.
47	In clear glass bottle—full (room temperature)
48	In clear glass bottle—$^{9}/_{10}$ oil and $^{1}/_{10}$ water (room temperature)
49	In clear glass bottle—$^{1}/_{4}$ oil and $^{3}/_{4}$ air (room temperature)
50	In clear glass bottle—$^{9}/_{40}$ oil, $^{1}/_{40}$ water and $^{3}/_{4}$ air (room temperature)
51	In amber glass bottle—full (room temperature)
52	In amber glass bottle—$^{9}/_{10}$ oil and $^{1}/_{10}$ water (room temperature)
53	In amber glass bottle—$^{9}/_{40}$ oil, $^{1}/_{40}$ water and $^{3}/_{4}$ air (room temperature)
54	In amber glass bottle—$^{1}/_{4}$ oil and $^{3}/_{4}$ air (room temperature)
55	In clear glass bottle—full (cold cellar)
56	In clear glass bottle—$^{9}/_{10}$ oil and $^{1}/_{10}$ water (cold cellar)
57	In clear glass bottle—$^{1}/_{4}$ oil and $^{3}/_{4}$ air (cold cellar)

58	In clear glass bottle—$^{9}/_{40}$ oil, $^{1}/_{40}$ water and $^{3}/_{4}$ air (cold cellar)
59	In amber glass bottle—full (cold cellar)
60	In amber glass bottle—$^{9}/_{10}$ oil and $^{1}/_{10}$ water (cold cellar)
61	In amber glass bottle—$^{1}/_{4}$ oil and $^{3}/_{4}$ air (cold cellar)
62	In amber glass bottle—$^{9}/_{40}$ oil, $^{1}/_{40}$ water and $^{3}/_{4}$ air (cold cellar)

COD LIVER OIL NO. 17 SUBJECTED TO VARYING CONDITIONS OF LIGHT, HEAT, MOISTURE AND AIR.

COLOR TEST.

Sulphuric Acid Test.

Group G—Laboratory Sample No.	Results.
47	Blue–dark blue–purple–red–violet–reddish brown
48	Blue–dark blue–purple–green–brown
49	Green blue–red violet–reddish brown
50	Light brown–dark reddish brown
51	Blue–purple–red violet–reddish brown
52	Blue–purple–red violet–reddish brown
53	Light brown–dark reddish brown
54	Green blue–red violet–reddish brown
55	Blue–purple–red violet–reddish brown
56	Blue–purple–red violet–reddish brown
57	Green blue, red violet–reddish brown
58	Green blue–blue black–reddish brown
59	Blue–purple–green brown
60	Blue–purple–reddish brown
61	Blue–purple–red violet–reddish brown
62	Green blue–blue black–reddish brown

COD LIVER OIL NO. 17 SUBJECTED TO VARYING CONDITIONS OF LIGHT, HEAT, MOISTURE AND AIR.

COLOR TEST.

Nitric Acid Test.

Group H—Laboratory Sample No.	Results.	
	At zone of contact.	After stirring.
47	Purple	Red-violet to reddish brown
48	Purple	Red-violet to reddish brown
49	Purple	Red-violet to dark reddish brown
50	Light brown	Dark reddish brown
51	Purple	Red-violet to reddish brown
52	Purple	Red-violet to dark reddish brown
53	Light brown	Red-violet to dark reddish brown
54	Purple	Red-violet to dark reddish brown
55	Violet	Red-violet to reddish brown
56	Purple	Green to brown to dark reddish brown
57	Purple	Red-violet to dark reddish brown
58	Violet	Red-violet to dark reddish brown
59	Light violet	Rose color to reddish brown
60	Light violet	Rose color to reddish brown
61	Light purple	Purple to dark reddish brown
62	Purple	Red-violet to dark reddish brown

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A REVIEW OF THE LITERATURE IN PHARMACEUTICAL BOTANY AND PHARMACOGNOSY FOR 1922–1923 (AUGUST 1, 1922–AUGUST 1, 1923).*

BY HEBER W. YOUNGKEN.

The past year (August 1, 1922–August 1, 1923), like the one before it, has been fruitful in excellent research work and valuable papers, and I am honored, I know, in being permitted to review and indirectly to compare the literature resulting from these years. In fact, along certain lines, the past year has exceeded the one before it both in bulk and in quality of the scientific crop.

Whenever I wish to convince myself that Pharmaceutical Botany and Pharmacognosy are really progressing, I need only look at the results attained in 1922–1923 by that vast army of scientific searchers who have slowly but surely cleft their way into realms unexplored, seeking eagerly for truth, adding new facts to knowledge and stripping old teachings of fallacies.

If, at the same time, I view the avenues along which progress has been made, I see them ever increasing—not confined to morphology and chemistry alone but including microanalysis, drug plant cultivation, applied plant physiology, drug exploration and others as well. Some paths, it is true, are trodden more than others for various reasons. They may be large, important, accessible, or perhaps they may give promise of ready transportation to the goal. Such, it seems, has been the lot of plant chemistry with its inevitable harvest of valuable research.

In the end, however, it has been the keen enthusiasm and coöperation shown by all that has resulted in such progress. The morphologist has helped the chemist; the chemist, the morphologist, etc. The work produced by Viehoever, Rosenthaler, Rusby, Reutter, Wherry, Keenan, Kremers, etc., is highly inspiring and a source of lasting good. Truly, upon such reflections, I realize that our science is progressing.

In this paper, I have retained the headings that I adopted last year—(1) morphology, (2) drug cultivation, (3) microanalysis and microchemic methods, (4) drug adulteration and substitution, (5) plant chemistry, (6) ash determination, and (7) history, so that the reader by referring to my last year's review of similar nature may be able to quickly compare the productions of the two years along the lines mentioned.[1]

I shall now briefly mention some selected papers in each of these fields.

Along morphological lines, I take delight in mentioning "Occurrence and Forms of Calcium Oxalate Crystals in Official Crude Drugs," by E. T. Wherry and G. J. Keenan appearing in a late number of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.[2] This paper contains a discussion of calcium oxalate monohydrate, magnesium oxalate monohydrate, potassium hydrogen oxalate, a list of observations on the crystals of individual drugs and a list of drugs not containing calcium oxalate. Here might also be placed provisionally the "Traité de Matière Médicale et de Chimie Végétale,"[3] by Dr. Reutter whose beautiful work commands attention. An interesting investigation is one conducted by Fanchon Hart, "The His-

* Scientific Section, A. PH. A., Asheville meeting, 1923.

[1] Page 122, February JOUR. A. PH. A., 1923.

[2] Page 301, April JOUR. A. PH. A., 1923.

[3] See Book Notices and Reviews, p. 472, JOUR. A. PH. A., May 1923.

tology of Vilca Bark,"[1] the medicinal bark of *Piptadenia macrocarpa* collected by Dr. H. H. Rusby during his recent Amazonian exploration. Lastly, I mention the third edition of "Microscopical Examination of Foods and Drugs," by Henry G. Greenish.[2]

Turning next to drug cultivation, I may especially refer to "Cultivation of Medicinal Plants in France," a report on the awakening of France due to the War with respect to her activity in raising and harvesting drug plants. Another very interesting article appears in the same issue of the *American Druggist* dealing with the Yerba Maté industry of Paraguay written by Trade Commissioner W. L. Schurz, Asuncion. I take opportunity here to repeat my plea of last year with respect to drug cultivation as it offers a most fertile field for research.

Advances have been made in microchemistry and its methods. As a result, we have some excellent papers to record. Of these, I name two: "Sublimation of Plant and Animal Products—Third Report," by A. Viehoever, which appeared in the *J. Assoc. Official Agric. Chem.*, 6, 473, 1923. This paper discusses a new sublimation flask which the writer designed for micro- and macro-sublimation. A most interesting and valuable paper is that of L. Rosenthaler entitled "Neue Microchemische Alkaloid-Reaktionen," appearing in *Schweiz. Apoth. Ztg.*, 61, 117, 1923. This covers a series of tests performed on various alkaloids (Brucine, Cocaine, Stovaine, Morphine, etc.), together with drawings of their crystal shapes.

I must now pass over the next heading as rapidly as possible. Massatsch and Nestler both give interesting cases of drug adulteration—the former of santonin, the latter of saffron. Tanert cites an example in his "Seigle Ergoté Falsifié" of adulterated ergot where wheat starch paste was used after being passed through narrow apertures, suitably broken, and then colored first with red ink and then with black ink.

Again, I find that most of the research of the past year has been along chemical lines. This tendency I noted last year in my paper before this society. Microchemistry, we also note, has greatly developed. The following papers I select from the large number of estimable ones published and let them serve as powerful representatives of their group: "A Reinvestigation of the Proximate Composition of Rhamnus Frangula," by Gunton and Beal, the splendid papers of Rosenthaler on "Beiträge zur Blausäurefrage," the publications of Annett and his co-workers on opium and Simonson's papers on oils. Of course, here can also be included the exacting and much-praised "Traité de Matière Médicale et de Chimie Végétale" of L. Reutter. It must be understood that only the lack of space prohibits me from mentioning many more.

Scarcely any papers on ash determination have come to my attention nor could I find many in hunting through the literature. However, I know that Prof. E. L. Newcomb of the University of Minnesota has done a vast amount of work along this line as well as extended investigations on the problems concerned with the powdering of vegetable drugs in connection with the revision of the new United States Pharmacopœia and National Formulary. I hope that we shall soon hear from him in a series of profitable papers.

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[1] Page 906, November JOUR. A. PH. A., 1922.

[2] See Book Notices and Reviews, p. 377, *Ibid.*, April 1923.

With respect to drug history, I want to call attention to the "Romance of Spices," by C. H. LaWall of the Philadelphia College of Pharmacy and Science. This paper is an outgrowth of one of an inspiring series of evening lectures held at that college and reads like a most fascinating book. "De l'Opium comme Drogue Sensorielle" by Reutter de Rosemont also deserves marked attention at this time. Finally, the paper on "Some Interesting Plants of Bolivia" by H. H. Rusby gives us a valuable insight into the history of Coto and Cocillana barks and their substitutes.

The following list of references to papers in Pharmaceutical Botany and Pharmacognosy, which the writer realizes is necessarily incomplete, yet represents those papers which have come to his attention and which he deems beneficial to workers in these fields. It is to be noted that a number of the titles of foreign works have been translated into English for the benefit of those who do not read several languages.

MORPHOLOGY.

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Anatomy of Tissues Separating the Fruits of Compositae from Their Receptacles. A. Vrgoc, *Ber deutsch. pharm. Ges.*, 32, 176, 1922.

Histology of Cocillana and Substitute Barks. C. W. Ballard, JOUR. A. PH. A., 11, 781, 1922.

Anatomical and Chemical Studies of Cenchrus tribuloides. H. W. Youngken and C. H. LaWall, *Am. J. Pharm.*, 94, 567, 1922.

Botanical Source of Coto Bark. H. H. Rusby, *Bull. Torrey Bot. Club* (Sept. 1922), 259; through *Pharm. J.*, 109, 483, 1922.

Picrolima klaineana. E. M. Holmes, *Pharm. J.*, 109, 478, 1922.

Histology of Vilca Bark. Fanchon Hart, JOUR. A. PH. A., 11, 906, 1922.

Comparative Anatomical Studies of Drugs. H. Zörnig, *Schweiz. Apoth. Ztg.*, 49, 701, 1922.

Localization of Calcium Carbonate and Oxalate in the Fruits of Black Pepper and Cubeb. Antoni Ossowki, *Roczniki Farmacji*, 4, 187, 1922; through *J. pharm. Belg.*, 5, 216, 1923.

Presence of Non-lignified Vessels in the Zingiberaceæ. Antoni Ossowki, *Roczniki Farmacji* (1922), 184; through *J. pharm. Belg.*, 5, 250, 1923.

Occurrence and Forms of Calcium Oxalate Crystals in Official Crude Drugs. E. T. Wherry and G. Keenan, JOUR. A. PH. A., 12, 301, 1923.

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Examination of Peruvian Balsam, Ipecac and Mustard Seed. G. Fromme, *Pharm. Zentralh.*, 64, 167, 1923.

Influence of Nature of Soil on the Morphology of Belladonna. H. Bondouy, *Bull. sci. pharmacol.*, 30, 88, 1923.

Specimens of Cassia acutifolia, Delile. H. G. Greenish, *Chem. and Drug*, 98, 381, 1923.

Cascara Sagrada. E. M. Holmes, *Pharm. J.*, 110, 314, 1923.

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Cinchona Bark. Caesar and Loutz, *Südd. Apoth. Ztg.*, 63, 20, 1923.

Note on Starch. F. W. Tiebackx, *Pharm. Weekbl.*, 60, 339, 1923.

Estimation of Starch in Plant Tissues. F. E. Denney, *J. Assoc. Off. Agric. Chem.*, 6, 175, 1922.

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Florida Arrowroot. T. E. Wallis, *Chem. & Drug*, 98, 378, 1923.

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German Rhubarb. A. Semmel, *Heil. und Gewürzpflanzen*, 3, 1922; through *Pharm. Ztg.*, 67, 978, 1922.

A Morphological and Chemical Study of Nicandra physalodes (L.), Pers. Anton Hogstad, Jr., JOUR. A. PH. A., 12, 576, 1923.

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Selection of Milling of Crude Drugs. J. L. Hopkins, *Pharm. Era.*,[1] 55, 326, 1922.

The Botany of Aloes. William B. Day, JOUR. A. PH. A., 9, 620, 1922.

The Growth of Ergot in Rye Fields. R. Falck, *Pharm. Ztg.*, 67, 777, 786, 801, 1922.

Cultivation of Digitalis Plants. B. Pater, *Pharm. Monatsh.;* through *Pharm. Ztg.*, 67, 957, 1922.

Cultivation of the Poppy and Opium Production in Germany. H. Thoms, *Ber. deutsch. pharm. Gesellsch.*, 33, 25, 1923.

Cultivation of Medicinal Plants in France. Anon., *Am. Drug.*, 71, 11, 1923.

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Pharmacognosy in the Garden. E. E. Stanford, JOUR. A. PH. A., 12, 401, 1923.

Cascara Sagrada. E. M. Holmes, *Pharm. J.*, 110, 314, 1923.

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Adulteration of Saffron. A. Nestler, *Pharm. Zentralh.*, 64, 149, 1923.

Seigle Ergoté Falsifié. G. Tanert, *Répertoire Pharm.*, 35, 69, 1923.

Adulteration of Lemon Oil with Terpenes. G. Ajou, *Giorn. chim. ind. ed appl.*, 4, 389, 1922.

Deterioration of Drugs and How to Prevent It. J. W. England, *Pract. Drug.*, 41, 23, 1923.

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[1] See also JOUR. A. PH. A., July 1922, p. 521.

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Cod Liver Oil Industry in Newfoundland. S. S. Zilva and J. C. Drummond, *J. Soc. Chem. Ind.*, 42, 185T, 1923.

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PRIVILEGE OF CLEANING AND RELABELING IMPORTED FOODS AND DRUGS MAY BE WITHDRAWN.

The privilege of cleaning, sorting and relabeling imported foods and drugs that contain foreign matter, or that are misbranded to make them comply with the requirements of the food and drugs act before formal entry, may be withdrawn, according to a statement by the officials of the Bureau of Chemistry, United States Department of Agriculture, who are charged with the enforcement of the act. Attempts have been made recently by some importers to evade the relabeling and cleaning requirements on imported food and drug products, say the federal officials.

Importations of foods and drugs found to contain excessive dirt or foreign matter, or found to be misbranded, are released conditionally and allowed to be entered after cleaning or relabeling, if entire correction of the fault can be effected by such action. Conditional entry of food and drug products in this manner is a privilege rather than a right and is predicated upon the theory that all importers will carry out in good faith the cleaning or relabeling conditions imposed, say food officials. Conditional entry is now permitted in the interest of importers generally who would be put to great expense and would be occasioned loss if all illegal shipments were required to be exported or destroyed.

Should this form of control prove to be ineffective, some other form of control must be devised, and consideration is being given to an entire revocation of the privilege of all conditional entries, according to the food and drug officials. If this is done, all importations of food and drug products found to be misbranded, or found not to comply with the Government standards of purity, will have to be exported or destroyed.

The authorities are considering an alternative proposition of withdrawing the privilege of conditional entry from any individual importer who may attempt to evade the provisions which are imposed for conditional entry. Consideration is also being given, according to the officials, to the establishment of a list of accredited recleaning warehouses where all recleaning operations must be carried on.

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All articles recorded in these lists will be presented in abstract form in the bound volumes of the YEAR BOOK, which is issued annually. Those desiring abstracts immediately can obtain them for a fee of one dollar each by communicating with A. G. DuMez, Hygienic Laboratory, U. S. P. H. S., 25th & E Sts., N. W., Washington, D. C.

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THE ANALYSIS OF NITROGLYCERIN TABLETS.

BY MEYER SAMSON.*

The following method for the analysis of nitroglycerin tablets is a modification of the Hay nitrite method as given in the "Methods of Analysis" of the Association of Official Agricultural Chemists. The purpose of these modifications is to avoid the following errors or inconveniences of the old method:

(*a*) Inconvenience of extraction:

The old method involves in the case of machine-made tablets the passing of a "mess" of starch granules from one separatory funnel to another. Refusal to pass through the stopcock and sticking to the sides of the funnel with resultant incomplete extraction are of frequent occurrence. This is now avoided by the use of chloroform in the extraction of the nitroglycerin.

(*b*) Incorrect standard:

The preparation of a standard nitrite solution from silver nitrite involves a nitrite loss of 1% to 2.5% as shown by Laird & Simpson (*J. A. C. S.*, Vol. XLI, page 531). This gives correspondingly high results in the analysis of nitroglycerin tablets. This error is avoided by standardizing the nitrite solution against permanganate as suggested by these authors (*Ibid.*, page 528).

PREPARATION OF SAMPLE.

Introduce 20 tablets directly into a 60-cc. glass-stoppered separatory funnel. Moisten with 5 cc. water and extract with 10 cc. chloroform. Pass the chloroform through a pledget of

* Rochester, N. Y.

purified cotton moistened with chloroform into a 50-cc. volumetric flask. Repeat the extraction with 10-cc. portions of chloroform three times, then rinse the stopper and stem of the funnel through the cotton pledget with chloroform. Fill to the mark and mix thoroughly. Place a 5-cc. aliquot in a 100-cc. volumetric flask, fill to the mark with ether and mix well.

This procedure should take about ten or fifteen minutes. The chloroform settles readily, and the time-consuming "messes" of the old method are avoided.

REAGENTS.

(*a*) Sulphanilic acid solution:

Sulphanilic acid 5 Gm.
Concentrated hydrochloric acid 50 cc.
Water to make 1000 cc.

This is identical with Ehrlich's Diazo Reagent, used in urinalysis.

(*b*) Alpha-naphthylamine hydrochloride solution:

Boil 2.5 Gm. alpha-naphthylamine hydrochloride with 25 cc. conc. HCl and 500 cc. water till dissolved. Filter into a liter volumetric flask. Cool and make up to volume with water.

The addition of acid to the reagent avoids in large part the precipitation of the base by the alkalinity of the glass and renders it useful for several years.

(*c*) Standard nitrite solution:

Dissolve about 3.5 Gm. sodium nitrite stick in 500 cc. water. Determine the nitrite content according to a slight modification of the method of Laird & Simpson (*J. A. C. S.*, Vol. XLI, page 524) as follows: Place an excess $N/10$ potassium permanganate in a flask (about 40 cc.), add 10–20 cc. dilute sulphuric acid (1–6) and run in slowly from a burette a measured amount of the nitrate solution (about 25 cc.) stirring constantly. Now add a measured excess of $N/10$ oxalic acid (about 15–20 cc.) and proceed as usual in titrating an oxalate with permanganate.

Dilute a measured amount of this known nitrite solution with nitrite-free water so that one cc. shall contain 0.16 mgm. nitrite nitrogen. This is the strong standard solution. To prepare the standard solution used in the analysis dilute 10 cc. of the strong standard to a liter with nitrite-free water. One cc. of this solution contains 0.0016 mgm. nitrogen, equivalent to 0.0128 mgm. nitroglycerin.

The standard solutions should be protected from atmospheric oxidation and bacterial decomposition by overlaying with toluene.

DETERMINATION.

Place 10 cc. of the ether solution in a 50-cc. beaker, dilute with 10 cc. alcohol and add one cc. $N/2$ alcoholic potassium hydroxide. Cover with a watch glass and allow to stand ten minutes. Place on a steam-bath and when the ether boils remove the watch glass. When most of the liquid has evaporated add 10 cc. nitrite-free water and evaporate until the odor of alcohol can no longer be detected. This solution represents 0.2 of a tablet. Introduce it directly into a 100-cc. volumetric flask. Dilute with sufficient nitrite-free water to make the volume about 90 cc., add one cc. dilute hydrochloric acid, then 2 cc. of the sulphanilic acid and 2 cc. of the naphthylamine solution, complete the volume with nitrite-free water and mix thoroughly.

At the same time the standard solution, which is also a blank on the reagents, should be prepared. Place 9.5 cc. ether and 0.5 cc. chloroform in a 50-cc. beaker, add the alcohol and $N/2$ potassium hydroxide and proceed parallel with the determination up to the point of diluting to 90 cc. Here add first 10 cc. of the standard nitrite solution equivalent to 0.128 mgm., or 1/500 grain nitroglycerin, and then go ahead as in the determination.

Allow to stand 30 minutes (avoiding direct sunlight) and then compare the two solutions in a good colorimeter. If the Duboscq biological type colorimeter is used, setting the standard at 30 will give a good depth of color for comparison. Daylight is best for the reading but a colorimeter lamp with a "Daylight" glass window may be used.

All the details given above are worked out for 1/100 grain compressed tablets which are by far the most common nitroglycerin tablets used. For tablets of other grainages a proportionate aliquot must be taken for the final analysis. Results checking within 0.5% of each other should be easily obtained.

The use of the nitrite method in routine work in preference to the nitrate method is advocated for the following reasons:

(*a*) No evaporation in a vacuum desiccator is necessary.

(*b*) The pink color resulting from the nitrite method can be more accurately read on a colorimeter by most people than the yellow color resulting from the nitrate method.

With careful work, however, the nitrate method gives accurate results and it may be used as a check if desired, or routinely by those who prefer the yellow for colorimetric work.

NOTES ON THE VARIABILITY OF COMPOSITION OF U. S. P. SYRUP OF WILD CHERRY.*

BY L. F. KEBLER AND W. F. KUNKE.[1]

During the examination of a sample of syrup of wild cherry, purchased as of U. S. P. quality, it was found that the sucrose content was materially lower than that calculated from the formula. In fact, a large portion of the saccharine material was in the form of reducing sugar. Another brand of wild cherry syrup was purchased and it likewise proved to be low in actual sucrose content.

Examinations of certain galenicals, marketed under trade names, have also been found to contain considerable quantities of invert sugar compared with the sucrose claimed to be present. Manufacturers generally contend that they do not use glucose but sucrose only in preparing their goods. No reasons are usually offered to explain the presence of the invert sugar. In one instance a chemist, with the formula available to him but not to the Government, made the point that owing to the fact that a considerable quantity of the sucrose had been inverted, some combination of drugs possessing unknown or unrecognized medicinal properties might be present.

The literature contains some observations on the inversion of sucrose in medicinal syrups. F. W. Haussmann,[2] who reports some of the earliest results, found that the sucrose in the regular acid syrups was materially inverted in from one day to four months. In the case of the syrups prepared with plant drugs the inversion was comparatively small. He tested Althæa, Senega and Lactuacarium syrups. Among other observers may be cited Joseph L. Mayer[3] and G. W. Lloyd Plette.[4]

It was then decided to prepare a U. S. P. wild cherry syrup, according to the present Pharmacopœial formula and ascertain the degree and rapidity of inversion of this syrup under several conditions. One sample was kept in a bottle at room temperature and another in an ordinary ice-cooled refrigerator. In a little over four months practically all of the sucrose in each sample was inverted. The in-

* Presented at the Asheville meeting, 1923, Scientific Section.

[1] Bureau of Chemistry, U. S. Department of Agriculture.

[2] *Am. J. Pharm.*, 70, 585, 1898.

[3] Jour. A. Ph. A., 4, 945, 1915.

[4] *Ibid.*, 7, 609, 1918.

version appeared to be slightly retarded in the sample kept in the refrigerator.

Neither the original sample received as of U. S. P. quality nor the second sample purchased on the open market contained any hydrocyanic acid. The Pharmacopœia, however, prescribes no standard, either by formula or otherwise, for the presence or absence of this chemical. The distillation process, with silver nitrate as the titrating agent and ferric ammonium sulphate as indicator, was used for the hydrocyanic acid determination.

The two samples of syrup stored under different conditions were also tested as to the rapidity of loss or disappearance of hydrocyanic acid. The percentage of acid gradually diminished but not as rapidly as the sucrose inverted. Refrigeration seemed to retard the rate of acid changes.

Many workers have made observation on the diminution of the hydrocyanic acid content of various wild cherry galenicals. The most extended work is that of A. B. Stevens[1] who shows clearly the gradual loss of hydrocyanic acid in the bark itself and certain preparations.

COMPOSITION OF SOME MIXTURES SOLD FOR MAKING ALLEGED GENUINE CONTINENTAL WINES.*

BY L. F. KEBLER.†

For some time past this country has been flooded with literature offering for sale mixtures for the manufacture of various continental or European wines possessing the genuine flavors, bodies, and aromas of the original wines. In one case the promoter offered to sell, for one dollar, a mixture which would make two and one-half gallons of any of the following genuine wines: "Rhine, a magnificent wine with great body; Moselle, a good round dinner wine; Sherry, full flavor; Port, grand fruity; Bordeaux, a very soft flavor wine; Burgundy, a good body and flavor; Tokay, very choice; Malaga, unique of its kind."

A number of the mixtures offered for sale were examined in the Bureau of Chemistry.

Several consisted of barley, rose hips, European mountain ash fruit and St. John's bread. Others contained dried figs dyed as well and one mixture contained weed seeds and an artificially dyed wood.

In the manufacture of these alleged wines no grapes or grape juice was necessary. The basic fruit is the fig, which is entirely different from the grape. "Wines" made from such mixtures by any directions cannot be said to resemble even remotely the Continental wines enumerated.

Other promoters offered to sell for a dollar enough dry concentration, alleged to have been obtained by evaporating the respective wines to dryness, to make two and one-half gallons of any one of the wines described. Wines produced from these concentrations, according to given directions, were guaranteed to be full bodied, possessing all of the basic characteristics, such as bouquet, alcoholic content and body.

The alleged dry concentrations from wines were found to contain coloring

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[1] *Proc. Am. Pharm. Assoc.*, 48, 207, 1900.

* Presented at the Asheville meeting, 1923, Scientific Section.

† Bureau of Chemistry, U. S. Department of Agriculture.

matter, tannin, cream of tartar, and certain mineral substances, but the aromatic bodies which give character did not constitute a part of these residues, nor can they be reproduced by the working formulas furnished.

The great skill and experience essential to produce these European wines, coupled with the necessity for certain grapes grown in certain regions of known climatic conditions, makes impossible the regeneration of such wines from these dry concentrations.

It is a well-recognized fact that simply boiling wine materially changes its character, producing an article entirely different from the original wine except the alcoholic content.

Experiments show that by carefully distilling wine or whisky, preserving all of the distillates so as to avoid loss of aroma, then mixing the distillates with the undistilled portion, gives a product which differs entirely from the original article.

Fraud orders, which direct postmasters to stamp as fraudulent all mail addressed to parties against whom such orders are issued and return the letters so stamped to the original senders, have been issued in a number of cases against this method of obtaining money through the mails. Even with the fraud orders, however, the temptation for exchanging American dollars for the mixtures here described is very great and, according to reports, still profitable.

WINDOW DISPLAYS AND THEIR PRACTICAL APPLICATION IN SCHOOLS OF PHARMACY.*

BY E. R. SERLES.

In writing upon such a subject it may be a bit presumptuous for a scientifically trained man to discuss such a problem. However, the common phrase "The windows are the eyes of the store" caused me to become interested in how one might give the passing public the correct impression of the store inside. The modern window seems to be the answer.

After making a survey of more than one hundred stores in about fifty towns of my own state,[1] I found that not more than ten per cent. were what we would call modern, that is to say, they were often only semblances of a real display window. Very few had a background of any kind, almost all of them were irregular in shape, the glass made to fit the openings where the door did not. No lights other than a plain bulb suspended from the ceiling was used to dully illuminate a more dull window. Faults of varying nature might be pointed out in each but you are all familiar with the old-time drug store window, with its highly colored show bottles hanging in one corner.[2]

Since we were pioneers in the new adventure we have doubtless made many mistakes and will no doubt make many more before we reach anything like perfection.

Our first attempt consisted of a home made affair nine feet high, twelve feet

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* Section on Commercial Interests, A. Ph. A., Asheville meeting, 1923.

[1] South Dakota State College, Division of Pharmacy.

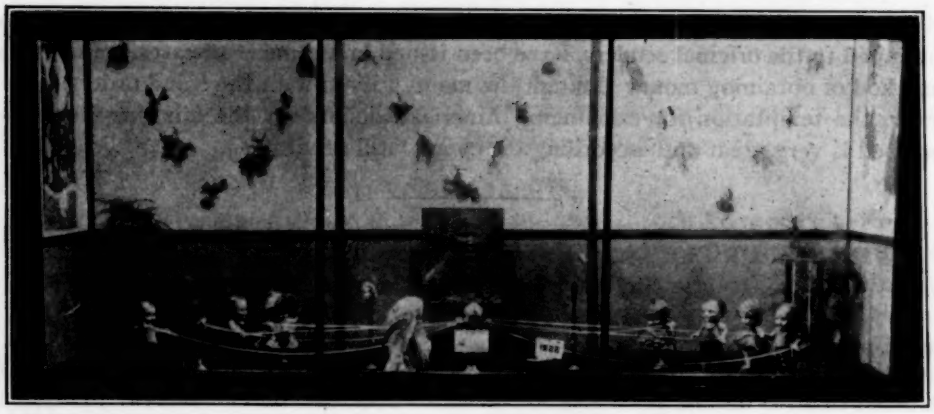
[2] Photographs of these were shown, but omitted here for reasons indicated.

long and three feet deep with three common window glass 52 in. x 48 in., a compoboard background, paneled with narrow strips of wood. The window was completed during the Christmas vacation of 1921 and display work began January 1, 1922.

Our first problem was to determine the size of the classes and by experimentation we found that three students working on a single display obtains the best results. By this means you are able to give individual instruction. The students are also able to help each other and may work without confusion.

The groups of threes were rotated until each member of the entire class had put in a display. By constant rotation we were able to get in about one hundred windows that year.

Now window display is an art developed only by the application of artistic principles. The color of the background, the blends of color in the display, the



New Year Window

proper modification of lights, the placement of your display material, even the show card is the result of painstaking labor. We are, therefore, introducing through the art department at our school a course in design, sign writing and the study of color schemes.

In testimony of the popularity of the course I wish to say that while no credit was given for the work during the year 1922, not a single student in the School of Pharmacy failed to work out the assigned share of the displays and, in many instances, the students had to be held in check in order that someone might not be crowded out of his turn.

Materials for displays were liberally furnished by the many drug and sundry firms, who have been high in their praise of the work. The State Board of Pharmacy and the School of Pharmacy Committee count it a marked step in the training of the future clerks, since it teaches the students to be good housekeepers, and acquaints them with the merchandise which they must eventually handle. Likewise they will have a better knowledge of how to present their goods to the public.

Four years ago we advocated the teaching of this phase of the work on a much larger scale, namely—the modern store as a laboratory for the teaching of "Commercial Pharmacy." Our intentions were misconstrued, the idea laughed at,

because for two thousand years we had been training our pharmacists by the apprenticeship method.

The past four years have told a different story: first, the Virginia Experiment; now the University of Iowa College of Pharmacy is coming out with a modern store; only a few days ago I mailed Dean Ziefle of the Oregon School of Pharmacy a blueprint of our modern windows and he writes me that they are to have a new building and in it a modern store.

So pleasing were our endeavors with the old window that we now have two modern windows each with a polished plate glass five feet high, and ten feet long, a fine oak floor thirty inches wide. The background is paneled, the panels being made of compoboard, and decorated with tints of standard colors. The lights are placed above the window so that the X-ray reflectors throw a sheen of light over the interior.[1]

Lincoln Window.

Our course this year will consist of approximately one hundred displays with lectures on make-up, a one-hour credit course in sign writing making in all a two-credit course in window display. The fee will be $10 per student and nearly all of the work will come on Saturdays and nights after 4:15 so that no class work will have to be given up to make room for the new work.

In conclusion let me say that we feel that we have added in a measure a type of training for our students in Pharmacy similar to the work of the Practice Cottage for the girls in Home Economics, the Butter Manufactory for the students in Dairying, the Machine Shop for the Engineer; in fact, we feel that a thorough course in the development of the front of the store is as ethical and essential as that of any department of the establishment.

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[1] EDITOR'S NOTE.—Quite a number of windows were shown by photographs; from these two have been selected for publication. The first one is "window decoration No. I" and presents New Year greetings of faculty members—E. R. Serles and Anton Hogstad, Jr. The Whitehead Memorial Tablet is the background and center of the window. The other display was made during the week of Lincoln's birthday and associates with this occasion a bit of history, locality and seasonal suggestion. This view also exhibits show cards; on the one side is an exhibit of preparations and the other side displays prescription department utensils, etc. The latter window was decorated by three students of the school of pharmacy.

THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

PHARMACY IS A PROFESSION.

BY C. B. JORDAN.*

The validity of the statement "Pharmacy is a Profession" has been questioned by some who judge pharmacy solely by the exterior signs that are found in a modern drug store. Those who fully understand the dual nature of pharmacy and appreciate the relationship that it bears to public health have never questioned its professional status. To any mind the statement "Pharmacy is a profession" is axiomatic, but, for the purpose of discussion, I will admit that it may not be true. How, then, shall we prove whether it is true or false?

We cannot find a satisfactory definition of the term "profession;" therefore, it is best to select the outstanding qualifications of our best professions and determine whether or not pharmacy has these qualifications. Granting that medicine, dentistry, law and ministry are well-defined professions, what are the qualifications that distinguish these callings from others that are classified as non-professional? The outstanding qualifications are:

1st. The membership is selective and demands a training and competency far beyond that required of the ordinary individual.

2nd. The practice of a profession contributes to and is necessary for the public welfare.

3rd. The practitioners of a profession are inspired by a desire to serve and not by the sole desire of personal gain.

4th. A profession has a well-defined code of ethics.

5th. A profession has an organization or organizations that inspire its members to abide by its code of ethics.

6th. A profession is recognized by the commonwealths by laws that protect the public from incompetency.

7th. A profession has a literature.

These seven qualifications will be our measuring stick to determine the status of pharmacy. Let us consider them seriatim and determine whether or not pharmacy meets these requirements.

First. The membership of a profession is selective and demands a training and competency far beyond that required of the ordinary individual. Those who wish to enter pharmacy *must* meet certain specifications. These specifications vary in the different states, but in all states the applicant must be not less than twenty-one years old, of good moral character, must serve an apprenticeship of four years and must successfully pass a thorough examination. In Indiana, my home state, the applicant must be a high school graduate before entering college, must be a graduate of a reputable college of pharmacy requiring at least two years of collegiate work, must be at least 21 years old, of good moral character, and must successfully pass a thorough examination. Beginning with the autumn of 1925, no college of pharmacy will be recognized by our State Board of Pharmacy that

* Purdue University School of Pharmacy.

does not require at least a three-year course as a minimum course. Twenty states now have prerequisite laws that require all candidates to be graduates of reputable colleges of pharmacy. Prerequisite laws are being agitated in the other states and it will not be long before no applicant can enter pharmacy in any state in the Union unless he is a graduate of a reputable college of pharmacy.

The membership in pharmacy is selective and a training and competency far beyond that required of the ordinary individual is demanded of all who wish to enter; therefore, pharmacy has the first qualification.

Second. The practice of a profession contributes to and is necessary for the public welfare. Pharmacy contributes to and is necessary for the public welfare. Our national narcotic act and the eighteenth amendment recognize pharmacy and place the legal dispensing of narcotics and alcoholic liquors solely in the hands of pharmacists. Our state laws place the sale of poison, with few exceptions, in the hands of pharmacists and make them sole dispensers of physicians' and dentists' prescriptions. Therefore, pharmacy contributes to and is necessary for public welfare. Pharmacy has the second qualification.

Third. The practitioners of a profession are inspired by a desire to serve and not by the sole desire of personal gain. Pharmacists are inspired by a desire to serve and not by the sole desire of personal gain. The prescription departments of 90 per cent of the drug stores do not yield a fair return on money and time invested and yet the pharmacists retain these departments for service to the public. During the last few years the so-called drugless drug stores have appeared. These stores have eliminated their prescription departments and stopped the sale of poisons because they did not yield a fair return for time and money invested. The pharmacists have condemned this practice. In Indiana a law was recently passed at the instigation of the State Pharmaceutical Association compelling all stores that advertised as a pharmacy, a drug store, or apothecary to have a registered pharmacist in charge at all times. A similar law is now being urged by the New York Pharmaceutical Association. The above shows clearly that the pharmacists are inspired by a desire to serve and not by the sole desire of personal gain. Some have fallen from grace, but this is true of all professions. Pharmacy has emphatically shown that it condemns those who are not inspired by a desire to serve. Pharmacy has the third qualification of a profession.

Fourth. A profession has a well-defined code of ethics. Pharmacy has such a code of ethics. The American Conference of Pharmaceutical Faculties has recommended that all applicants to member colleges be required to subscribe to this code of ethics. Pharmacy has the fourth qualification.

Fifth. A profession has an organization or organizations that inspire its members to abide by its code of ethics. Pharmacy has many such organizations. I will mention only four. The American Pharmaceutical Association drew up and adopted the code of ethics[1] for pharmacy. It does for pharmacy what the American Medical Association does for the profession of medicine. It has no peer among the organizations of the other professions. The state pharmaceutical associations are doing for the pharmacists of the states what the national organization is doing

[1] See Volume 2, 1853, *Proceedings, American Pharmaceutical Association*, p. 45. JOUR. A. PH. A., 11, 728, 1922.

for the nation. The American Conference of Pharmaceutical Faculties, composed of the faculties of the best colleges of pharmacy in the United States, has done an excellent work for pharmacy. It has always stood for the best and has urged higher requirements and more competent practitioners for pharmacy. As mentioned above it has recommended that all applicants for entrance to member colleges be required to subscribe to the pharmacy code of ethics. The National Association of Boards of Pharmacy has done for the boards what the Conference has done for the colleges. No other profession has such an organization. Pharmacy has the fifth qualification.

Sixth. A profession is recognized by the commonwealths by laws that protect the public from incompetency. Every state in the Union has a pharmacy law that specifies certain qualifications that must be met by all practitioners and fixes penalties for infraction of the law. In addition, the United States government has recognized pharmacy as indicated in the discussion of the second qualification. Pharmacy has the sixth qualification.

Seventh. A profession has a literature. Pharmacy has such a literature and it is indeed a rich literature. The JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION and the YEAR BOOK of this Association are typical examples of scientific publications that are purely professional. The National Formulary, recognized by Congress, in the Pure Food and Drugs Act and the Prohibition Act, is published by the AMERICAN PHARMACEUTICAL ASSOCIATION. The United States Pharmacopœia is revised every ten years by a committee, 66 per cent of whom are pharmacists. Pharmacy has representation in the National Research Council. A great amount of research is accomplished by pharmacists every year, thus adding materially to the literature of pharmacy. The *American Journal of Pharmacy* and a host of others are also adding yearly to the literature of pharmacy. I have only briefly sketched this literature, but enough has been given to prove that pharmacy has a literature. Pharmacy has the seventh qualification of a profession.

I have proved that pharmacy has all the qualifications of a profession; therefore *pharmacy is a profession.*

A NEOPHYTE OF THE SIGMA XI.*

BY H. V. ARNY.

In behalf of the initiates of 1924 permit me to express our thanks for the great honor you have vouchsafed us in conferring upon us membership in the Sigma XI. We neophytes stand before you with mingled feeling of awe and of exaltation. We shy young things of 1924 are awed at the thought of being in the presence of you, our "grave and reverend" seniors; we possess a feeling of exaltation; I might even say exultation, at being privileged to be initiates of this great organization, since we realize that membership in the Sigma Xi is a distinction, an opportunity and a privilege.

It is a distinction to be received into a select society which numbers among

* Remarks made "On behalf of the Initiates of 1924" at the annual initiation banquet of the Kappa Chapter of the Sigma Xi Society, the national honorary fraternity of research workers.

its members such wise and adept workers in the field of science as Millikan, Baekeland, Menzies and Parsons; to say nothing of you distinguished gentlemen whom I see scattered around the room. Then membership in the Sigma Xi is an opportunity; an opportunity to follow science in its most beautiful phase; the search after truth, the search after still more facts. All of us who have taught a number of years can enumerate our disappointments, as we have seen our pupils of the greatest scientific promise desert the field of science in their chase after the elusive dollar. How many young men of the most brilliant promise sell their scientific birthright for a mess of pottage! A mess of pottage is all right in its place, as we initiates have demonstrated in the hearty justice we have shown in the ample "mess of pottage," that the Kappa Chapter has just provided for us. A mess of pottage may save the starving body, but the starving mind, the starving soul, needs other sustenance and to us scientists the inspiration of research is as necessary to the full development of our mind as food is to the development of our bodies. As I understand it, the Sigma Xi is committed to the principle that it is our duty to do research work; that even as all we of to-day know, all that we teach, is the result of tens of thousands of studies by thousands of investigators of the past, so in turn it is our duty to show our gratitude to our predecessors, the masters who have gone before us, by adding our modest contributions to the sum total of human knowledge. If this be the actuating principle of the Sigma Xi, it is the duty of us, her sons and daughters, to make best possible use of this opportunity for service. Then, membership in the Sigma Xi is a privilege. It is a privilege to become brothers of you distinguished members of the Kappa Chapter; to be members of the great national society; to be deemed worthy to wear the key that carries the message of the Sigma Xi throughout the length and breadth of this great land of ours—yea, even as we have found this evening, throughout the world.

Perhaps it will not be impertinent for me to add at this time a personal word of thanks. I consider the honor of my election to the Sigma Xi as an honor bestowed upon American pharmacy. To most scientists, pharmacy means the corner drug store. To our toastmaster, who, judging from his jocular introductory remarks, seems to have an intimate knowledge of such establishments, pharmacy seems to be associated with "the boot-leg shop." Since this hideous phase of Volsteadism has been mentioned, I owe it as a duty to pharmacy to remind my hearers of the fact that in the sordid "boot-leg" transaction, three individuals are equally guilty: the boot-leg druggist; the boot-leg doctor, who writes the prescription; and the thirsty citizen who for indulgence of self coaxes two weaklings to besmirch two honorable callings. But to return to my theme, pharmacy is not exclusively the retail drug store which has faithfully served the public for centuries and which is still faithfully serving it under most trying conditions. Pharmacy is partly a business, partly an art, partly a profession. And, moreover, pharmacy is one of the most ancient of sciences. In the dim mists of the past, in the days of ancient Egypt the priest was a theolog, a star gazer, a physician and a pharmacist. To those of you who doubt the latter statement, I commend a study of Eber's "Papyrus" and other medical writings of the Land of the Pharaohs. As I have said elsewhere, "Before Science was, Pharmacy is." It is true in these days of material rather than spiritual progress, the cark of business has dimmed the scientific luster of pharmacy, but a calling that has numbered among its followers such men as Scheele,

the Swedish apothecary, Sertürner, the apothecary of Eimbeck, Pelletier, the great *pharmacien* of Paris, to say nothing of our present day, John Uri Lloyd—such a calling I think has the right to call itself a science.

The National Conference of Pharmaceutical Research of which I have the honor of being chairman has now enrolled 200 individuals—pharmaceutical chemists, pharmaceutical botanists, pharmacognosists and dispensing pharmacists—who are interested in research. That their interest is not purely academic is shown in the fact that at each annual meeting of the scientific section of the American Pharmaceutical Association, anywhere from 50 to 100 papers embodying research are presented and discussed. A remarkable evidence of the research activity of American pharmacy is shown in the operations of the Revision Committee of the United States Pharmacopœia. This organization entrusted with the preparation of the national legal standard for medicines is, as far as I can learn, the oldest coöperative research group in existence in this country, having celebrated its centennial in 1920. Of the 50 pharmacopœial revisers, 33 are pharmacists. Surely a calling that can produce such a record of research is worthy to be classed among the sciences.

But my brother and sister initiates of 1924 may think I am forgetting them. So, Mr. Toastmaster, in my last minute, permit me in their behalf to say in the words of that great and strenuous man, the immortal "T. R.," that we have had "a bully time" this evening; that we are proud to be members of the Sigma Xi and that we hope by our future work to show ourselves worthy to carry forward the traditions of the Sigma Xi.

WHAT SHOULD A PHARMACIST KNOW?

The Commonwealth Study of Pharmacy.

BY JULIUS A. KOCH.

To-day the trend in the education of youth is characterized chiefly by its practical application to the requirements for the actual service expected in the individual's chosen field. It is based upon the idea that while it may be desirable for the individual to know more than is necessary for adequate service, he should at least know that much.

The men concerned with the study of pharmaceutical education from the functional point of view were early confronted with the problem of how best to determine the specific body of knowledge the pharmacist should have in order to insure proper service.

They felt that, if they were to make a list of the duties of the pharmacist as a public servant, study thousands of prescriptions in detail, chart the economic facts necessary for the successful conduct of business, and in short to consider carefully all the services that are and should rightfully be expected of a pharmacist, they would have a body of material from which they might with some degree of accuracy determine specifically the background of knowledge necessary for its proper fulfilment.

As an example a consideration of the study of Latin would serve to give an idea of the application of the functional method.

Several thousands of prescriptions were studied for their Latin content, and each Latin word, phrase or abbreviation was charted as a separate entity. This was continued until a further examination of prescriptions brought forth no new material.

In view of the fact that these prescriptions were obtained from diverse localities throughout the length and breadth of the United States, and, since the study of prescriptions was continued until all the possibilities for new material were practically exhausted, it was felt that the data obtained were representative of the Latin ordinarily used in prescription practice.

Using this material as a basis, the Latin actually necessary for a pharmaceutical student could be determined somewhat positively. Briefly, if a student were taught a body of Latin knowledge that would include all the possible words he might encounter in ordinary prescription practice, his knowledge of Latin would be adequate for all practical purposes.

Such a study is now in progress in the hands of competent workers, and when this portion of the study of pharmaceutical education is completed, the results will be submitted for the earnest consideration of the pharmaceutical public.

MICRO-CHEMICAL METHODS.

The interesting account of micro-chemistry and its applications given by Professor van Itallie, of Leyden, before the Pharmaceutical Society, in London, draws attention to a branch of modern chemical technique that has been developed to a high degree of perfection in Holland and elsewhere, but that has not yet received an adequate amount of recognition in this country. The identification of chemical substances by means of the microscope is, of course, a well-known procedure, and one that has proved its high value not only in the examination of foods, drugs and pharmaceutical products, but also in mineralogy and in general chemical work. The carrying out of qualitative reactions under the microscope as an aid in the identification of the substances under examination was an early application of micro-chemical methods, but it is still in the further extension of these methods to quantitative work that the greatest modern progress has been made. The name of Professor Pregl, who received the Nobel Chemistry Prize for 1923 for his work, is especially prominent in connection with the development of these quantitative methods. * * * Professor van Itallie now tells us that micro-chemical methods have been in daily use in his laboratories for several years, and that his students frequently prefer micro-chemical to the customary macro-chemical methods. Some idea of the accuracy of the new procedure in the ultimate analysis of organic compounds can be gained from Dr. van Itallie's statement that in a test experiment, using less than 10 milligrams of the organic substance, the amount of carbon found differed by no more than 0.3 per cent. from the figure obtained in the ordinary combustion method. Professor H. G. Greenish, who visited Leyden in September last specially to study micro-chemical methods, stated in the discussion to the paper that he was convinced the method was both workable and accurate. The exact weighing of very small quantities of material presents no difficulties, for there are a number of suitable micro-balances now available. We cannot quite see eye to eye with those who advocate the introduction of micro-chemical methods into a practical chemistry curriculum of secondary schools of first year university courses, on the ground of the saving to be effected in the quantities of reagents used. These savings are likely to be counter-balanced by the cost of the necessary instruments. But it is more than likely that quantitative micro-chemical methods are destined to form, in the future, an essential feature of most courses in advanced chemical training.—*Chemical Trade Journal*, January 18, 1924; through *Pharm. Jour. & Pharmacist*, January 26.

PHARMACEUTICAL FORMULAS

PROPOSED FOR "BOOK OF UNOFFICIAL FORMULAS, A. PH. A."

The formulas heretofore published will be found in Volume I, JOURNAL A. PH. A., pp. 169, 366, 505, 637, 760 and 1307; Volume V, pp. 309, 422, 529, 631, 748, 862, 991 (see also p. 1129), 1126, 1265 and 1397; Volume VI, pp. 79, 194, 298, 393, 486, 563, 643, 729 and 823. See also Volume X, pp. 292, 382, 468, 534, 628; Volume XI, pp. 551, 624; Volume XIII, pp. 357, 471.

For list of committee members and committees see April issue, 1921, p. 292; also refer to Roster on p. X of this issue. Suggestions for formulas, and comments on those published are invited. They may be sent to a member of the Committee or to Chairman J. Leon Lascoff, 1223 Lexington Ave., New York, N. Y.

No. 787.

LINIMENT OF AMMONIA WITH CAMPHOR.

(Linimentum Ammoniæ cum Camphora, B. P. C.)

Ammonia Water	25.00
Liniment of Camphor	25.00
Olive Oil, enough to make	100.00

No. 788.

COMPOUND EXTRACT OF RHUBARB.

(Extractum Rhei Compositum, Ph. Ger.)

Powd. Extract of Rhubarb	6.00
Powd. Extract of Aloes	2.00
Resin of Jalap	1.00
Castile Soap	4.00

No. 789.

MUCILAGE OF SALEP.

(Mucilage Salep, Ph. Ger.)

Powdered Salep	1.00
Water, cold	9.00

Shake in bottle, then add 90.0 of boiling water, and shake until cold. This should be freshly made.

No. 790.

VINOUS TINCTURE OF RHUBARB.

(Tinctura Rhei Vinosa, Ph. Ger.)

Powdered Rhubarb	40.00
Powdered Orange Peel, sweet	10.00
Powdered Cardamom	5.00
Sherry Wine	500.00
Macerate for three days, filter, and add	
Sugar	60.00

No. 791.

OINTMENT OF LEAD TANNATE.

(Unguentum Plumbi Tannici, Ph. Ger.)

Tannic Acid	1.00
Sol. of Lead Acetate	2.00
Lard	17.00

No. 792.

PATTON'S RHUS LOTION.

(Remedy for Ivy Poisoning.)

Sodium Bicarbonate	20.00
Sodium Sulphite	20.00
Glycerin	40.00
Fluidextract of Grindelia	300.00
Water	600.00

No. 793.

GENERAL EXCIPIENT POWDER FOR PILLS.

Powdered Licorice	40.00
Powdered Tragacanth	20.00
Powdered Castile Soap	20.00
Starch	12.00
Sugar	6.00
Magnesium Oxide	6.00

No. 794.

HUFELAND'S SCROFULA OINTMENT (Ph. Dan.).

(Unguentum ad Scrophulos Hufelandi.)

Lard	100.00
Oxgall, dried	25.00
Petrolatum	12.50
Ammonium Carbonate	
Camphor, of each	2.00

No. 795.

ELIXIR OF DAMIANA (N. F. III).

(Elixir Turneræ.)

Fluidextract of Turnera	150.00
Talc	15.00
Alcohol	250.00
Glycerin	65.00
Aromatic Elixir	535.00

No. 796.

MUCILAGE OF CYDONIUM.

(Mucilage Cydoniæ. U. S. P. 1880.)

Quince Seed	2.00
Water	100.00

No. 797.

GALLIC ACID OINTMENT.

(Unguentum Acidi Gallici, U. S. P. 1880.)

Gallic Acid	10.00
Benzoinated Lard	90.00

No. 798.

NEUTRAL MIXTURE.

(Mixtura Potassi Citratis, U. S. P. 1880.)

Fresh Lemon Juice	100.00
Potassium Bicarbonate	10.00

Submitted by Chairman Lascoff.

No. 799.

CHILBLAIN BALSAM.

Castile Soap	60.00
Potassium Iodide	30.00
Camphor	15.00
Alcohol	750.00

Digest by gentle heat, filter and add

Tincture of Benzoin	
Glycerin	
Rose Water, of each	60.00

No. 800.

CHILBLAIN SALVE. A.

Balsam Peru	8.00
Ichthyol	8.00
Lanolin	16.00

No. 801.

CHILBLAIN SALVE. B.

Phenol	0.60
Menthol	2.00
Petrolatum	20.00
Lanolin	10.00

No. 802.

LIQUID FACE POWDER.

(Eau Cosmetique. Schminkwasser.)

Bismuth Carbonate	100.00
Talcum	200.00
Rose Water	800.00

No. 803.

LIQUID FACE POWDER.

Zinc Oxide	50.00
Bismuth Oxychloride	50.00
Corn Starch	50.00
Glycerin	100.00
Orange Flower Water	750.00

No. 804.

APERIENT ELECTUARY.

(Electuarium Aperiens.)

Powdered Senna	15.00
Potassium Bitartrate	7.50
Tamarind Pulp	30.00
Manna Syrup	60.00

No. 805.

ELIXIR OF RHUBARB.

(Elixir Rhei.)

Comp. Wine of Rhubarb N. F.	300.00
Glycerin	
Syrup, of each	80.00
Alcohol	40.00
Cinnamon Water	100.00

No. 806.

ASTHMA POWDER (For Inhalation).

Powdered Stramonium Leaves	500.0
Potassium Nitrate	500.0

No. 807.

AUTOMOBILE POLISH.

Yellow Wax	250.0
Potassium Carbonate	30.0
Oil of Turpentine	30.0
Water, enough to make	1000.0

Heat the wax and water to boiling point, add the potassium carbonate, boil a few minutes; remove from fire, add oil and stir till cold.

No. 808.

BLACKHEAD OINTMENT.

Precipitated Sulphur	128.0
Glycerin	128.0
Cold Cream, enough to make	1000.0

No. 809.

BOTTLE CAPS (Red).

Rosin	660.0
Tallow	220.0
Vermillion	80.0
Rosin Oil	40.0

No. 810.

BOTTLE CAPS (Yellow).

Paraffin	650.0
White Wax	325.0
Lead Chromate	20.0
Yellow Ochre	5.0

Sift the powders on the melted paraffin in water-bath, add wax and melt.

No. 811.

CHAPPED HAND LOTION.

Powdered Tragacanth	27.0
Glycerin	190.0
Expressed Oil of Almonds	48.0
Alcohol U. S. P.	120.0
Tincture of Benzoin	24.0
Oil of Neroli	1.0
Oil of Bergamot	1.0
Oil of Geranium	2.0
Water, enough to make	1000.0

Place the tragacanth in a large mortar, wet it thoroughly with a portion of the alcohol; add all at once 500 cc. of water and triturate until a uniform mixture is formed. Incorporate the almond oil, the tincture and essential oils; add gradually, with constant trituration, the remainder of the alcohol, glycerin and water.

No. 812.

CAMPHOR ICE.

Spermaceti	460.0
Expressed Oil of Almonds	240.0
White Wax	240.0
Camphor	60.0

No. 813.

COLD CREAM (Lanolin).

White Wax	135.0
Hydrous Wool Fat	40.0
Liquid Petrolatum	550.0
Rose Water	275.0

No. 814.

DANDRUFF REMOVER.

Mercuric Chloride	0.5
Tincture of Cantharides	20.0
Tincture of Capsicum	20.0
Castor Oil	10.0
Alcohol U. S. P. enough to make	1000.0

No. 815.

DANDRUFF WASH.

Chloral Hydrate	30.0
Resorcin	15.0
Tannic Acid	15.0
Alcohol U. S. P.	125.0
Glycerin	50.0
Rose Water, enough to make	1000.0

No. 816.

DANDRUFF REMOVER.

Mercuric Chloride	1.0
Resorcin	25.0
Castor Oil	3.0
Chloral Hydrate	32.0
Witch Hazel Water	400.0
Bay Rum, enough to make	1000.0

No. 817.

FOR DANDRUFF.

Resorcin, Tincture of Cantharides, Fluidextract of Jaborandi, Beta-naphthol, of each	20.0
Oil of Bergamot	2.0
Glycerin	120.0
Alcohol U. S. P., Rose Water, of each enough to make	1000.0

No. 818.

DEODORANT.

(For Perspiration.)

Aluminum Chloride	224.0
Water, enough to make	1000.0

Red coloring matter, sufficient quantity.

No. 819.

DEPILATORY POWDER.

Barium Sulphide	250.0
Soap, fine powder	50.0
Talcum	350.0
Wheat Flour	350.0

Directions: Mix one drachm with three drachms of water and apply; wash off in five minutes.

No. 820.

LIQUID DOG SOAP.

Castile Soap	250.0
Glycerin	62.5
Alcohol U. S. P.	62.5
Phenol	15.0
Oil of Eucalyptus	8.0
Water, enough to make	1000.0

No. 821.

ECZEMA OINTMENT.

Ointment of Boric Acid	235.0
Ointment of Zinc Oxide	475.0
Ointment of Ammoniated Mercury	235.0
Coal Tar Solution	20.0
Phenol	35.0

Ointment is to be made with yellow petrolatum.

No. 822.

EYE WASH.

Zinc Sulphate	0.5
Glycerin	50.0
Borax	32.0
Saturated Solution of Boric Acid	370.0
Peppermint Water	65.0
Rose Water	165.0
Camphor Water	165.0
Distilled Water, enough to make	1000.0

No. 823.

FACE LOTION.

Precipitated Sulphur	64.0
Camphor	4.0
Gum Acacia	8.0
Rose Water, Lime Water, of each enough to make	1000.0

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Board of Directors."—Part of Chapter VI, Article VI of the By-Laws.

Article IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

BALTIMORE.

The April meeting of the Baltimore Branch of the American Pharmaceutical Association which was held at the Hotel Emerson, April 30th, was an interesting and well-attended meeting. John C. Krantz, Jr., presided.

Dr. David I. Macht, Lecturer on Pharmacology at the Johns Hopkins Medical School, was the speaker, and his subject was: "Contributions to the History and Philosophy of Pharmacotherapy."

Dr. Macht, after defining the term "Pharmacotherapy," dealt in a very pleasing and instructive way with the history of early medicine, showing the prevalence of an instinctive, inborn intelligence in both the higher and lower animals to relieve pain and suffering. He gave as some of the motives of man in the early attempts of medication—the search for truth, the inborn characteristic of man to procrastinate, and the inclination to find refuge in the mystic.

In outlining the work in pharmacotherapy, Dr. Macht mentioned the two main divisions—irrational and rational, the first including signatures or likenesses, and cults; and the latter covering idiopathical, symptomatic and empirical medication. He made the lecture very interesting in exhibiting examples of extreme empirical medication, such as acid secretion of snails in the removal of warts and abnormal growths on the skin; and the use of antimony cups by the monks for emesis.

Dr. Macht said he considered digitalis, opium, ether, quinine and mercury as the five most important drugs in present-day medication, and pointed out the desirability of sympathetic coöperation between the pharmacist and the pharmacologist, which would enable the pharmacologist to assist in determining the value and use of new preparations as made by the pharmacist.

The discussions were animated and interesting, and were participated in by the following: H. A. B. Dunning, A. R. L. Dohme, Dr. E. F. Kelly, Joseph Futterman, John C. Krantz, Jr., and Louis Schulte.

The next meeting of the Branch will be on Wednesday, May 14th, at the Emerson Hotel.

B. OLIVE COLE, *Secretary-Treas.*

CHICAGO.

The 143rd regular meeting of the Chicago Branch of the American Pharmaceutical Association was held Friday evening May 16, 1924, at the University of Illinois School of Pharmacy building, President Warren presiding.

The evening was devoted to various exhibits along photographic lines bearing particularly upon plants and drugs. The X-ray pictures of flowers, prepared by Dr. John D. MacRae, were shown by the lantern as also many splendid pictures of medicinal plants and medicinal plant cultivation and photomicrographic pictures representing drug structures, polarized starch and crystals. There were also motion pictures of flowers and plants as well as a splendid exhibit of Lumière plates which were shown both plain and stereoptically. The meeting proved of interest and the large audience was enthusiastic in its reception of the various exhibits.

This was the last meeting of the season 1923–24, and arrangements were made for the Program Committee to prepare the program for the season of 1924–25 and submit it at the meeting next October.

E. N. GATHERCOAL, *Secretary.*

DETROIT.

The May meeting of the Detroit Branch of the American Pharmaceutical Association was held May 11, at Wayne County Medical Society. After the dinner, President Crandall called the meeting to order, at 8.20 P.M. Mr. Hall made a report for the Membership Committee, showing an increase of 34; he gave due credit to Mr. Chostner for this splendid record.

Treasurer Ingram's report showed receipts amounting to $168.66 and expenditures of $78.16, leaving a balance on hand of $90.50. He deemed it therefore unnecessary to ask for an assessment of one dollar per member, as last year. The report was accepted as read.

The Committee on Nominations, composed of Messrs. Webster, Scoville and Chase, presented the names of the following for officers of the ensuing year: *President*, G. C. Chostner; *Vice-President*, George Grommett; *Secretary*, Bernard A. Bialk; *Treasurer*, F. F. Ingram; *Chairman of the Program Committee*, L. W. Rowe; *Delegate to the House of Delegates*, Walter M. Chase. The report was received and the nominees elected by unanimous ballot. President Crandall introduced Messrs. Washburne, Hall and Summinsby as contributors to the evening's program, a Prescription Clinic. Each prescription was freely discussed, and by many of them it was shown that the addition of a simple agent may convert a pharmaceutically incompatible mixture into a compatible preparation.

A vote of thanks was given the contributors. President Crandall thanked the members of the Branch for the coöperation given him during his term of office. President-elect Chostner was introduced and expressed his appreciation of the honor conferred on him by the election; and gave assurance of his best efforts to make the meetings of the Branch successful, with the coöperation of the membership. A vote of thanks was given the retiring officers and the meeting adjourned.

BERNARD A. BIALK, *Secretary.*

NEW YORK.

The May 1924 meeting of the New York Branch of the American Pharmaceutical Association was called to order in the Lecture Hall of the New York College of Pharmacy Building, on Monday, May 12th, at 8:30 o'clock; President Smith in the chair.

In the absence of Secretary Schaefer, Jeannot Hostmann acted as Secretary *pro tem.*

Twenty-six members and friends were present.

The minutes of the March and April meetings were read and approved.

Treasurer Gerstner was absent. The following report was read:

TREASURER'S REPORT.

March 31, 1924, to May 12, 1924.

Receipts.

Balance on hand March 3, 1924.....	$321.54
Dues received to date.....	68.00
	$389.54

Disbursements.

3/15 Amsterdam Press (notices), check No. 20.....	$17.50	
3/15 Robert R. Gerstner (stamps), check No. 21...	2.10	
4/25 Amsterdam Press (notices), check No. 22	5.00	
4/25 C. G. Brozman (plating medal), check No. 23.....	3.25	
	$27.85	
Balance on hand May 12, 1924.....		$361.69

Respectfully submitted,

(Signed) ROBERT GERSTNER, *Treasurer.*

Fraternal Relations:—Chairman Lehman of the Committee on Fraternal Relations reported that he was arranging for a joint meeting of the Branch and the New York Pharmaceutical Conference to be held early in the fall. The recommendation was approved.

Membership Committee:—The following applications for membership in the Parent Organization were received and ordered forwarded to Secretary Day: Samuel S. Schindelman, 98 Ellery Street, Brooklyn; Benjamin Leo Tell, 134 Ludlow Street, New York; Harry B. Judlowitz, 330 Kosciusko St., Brooklyn; Ralph F. Senese, 86 Clinton Ave., Brooklyn. Peter Freess of 576 Third Ave., New York, was elected to membership in the Branch.

Audit Committee:—Dr. Diner reported all accounts in proper shape.

Under unfinished business Dr. Fischelis, Chairman of the Remington Dinner Committee, submitted his report. This was ordered approved.

A letter from Secretary Gesoalde of the New York Pharmaceutical Conference notifying the Branch of the appointment of Robert S. Lehman as Executive of the Conference was

read. The Branch voted to coöperate with Mr. Lehman in every way possible.

Scientific Section:—Dr. Diekman, Chairman of the Committee on Progress of Pharmacy, sent his regrets, being unable to be present.

Robert R. Lampa, Vice-President of Lehn & Fink, Inc., addressed the Branch on "What Pharmacy Means to the Wholesaler." Mr. Lampa's remarks were extremely interesting, entertaining and instructive. He made comparisons between conditions in wholesale and retail pharmacy of to-day and forty years ago, describing the gradual evolution that has taken place in both the wholesale and retail end of the calling. His talk was filled with reminiscences of little happenings during the years of his connection with the wholesale business, which brought back to the memories of his hearers the activities of such men as Squibb, Maisch, Bedford and others who have passed away.

Mr. Lampa's address was discussed by Messrs. Diner, McElhenie and others. A rising vote of thanks was tendered Mr. Lampa, and the meeting adjourned.

JEANNOT HOSTMANN, *Acting Secretary.*

UNIVERSITY OF NORTH CAROLINA.

At its eighth meeting for the year 1923–24 on the evening of April 30, the University Branch of the A. Ph. A. was privileged to entertain three well-known visiting pharmacists. A large audience of faculty, students and local druggists was present for the meeting and for the informal "feed" which followed the business of the evening.

The chief speaker on this occasion was Dean Wortley F. Rudd, of the Medical College of Virginia, Richmond, who came to Chapel Hill as an official guest of the School of Pharmacy. Dean Rudd in his address took as a subject "The Opportunities and Responsibilities of Pharmacy in the South," developing the idea that the South Atlantic Section, by reason of its unusually large percentage of native born inhabitants imbued with American ideals, and because of the satisfactory distribution of its people in urban and rural localities, was peculiarly fitted to keep alive the highest traditions of American pharmacy and to keep free from certain demoralizing influences that must necessarily operate in regions of dense congestion made up of cosmopolitan peoples. He spoke in terms of high praise of the work being done by the University of North Carolina and emphasized the wonderful opportunities its school of pharmacy would meet with in the future.

Accompanying Dean Rudd on his visit to the university was Mr. A. L. I. Winne, secretary both of the Virginia Board of Pharmacy and of the Virginia Pharmaceutical Association. Mr. Winne spoke briefly on the legislation recently enacted in his state on behalf of pharmacists and stressed the helpful part that pharmacy students can play in furthering the enactment of laws beneficial to the drug business.

The third speaker of the evening was Dr. E. V. Zoeller, of Tarboro, N. C., the only pharmacist in North Carolina to receive the honorary degree of doctor of pharmacy from the state university, given to him in recognition of his distinctive service as president of the Board of Pharmacy for three decades.

Following the business session of the Branch, the audience was invited into the pharmaceutical laboratories where each person was handed three prescriptions and assigned a desk on which to compound the ingredients called for. The prescriptions in question, written in full Latin, called for edible "drugs," and when elaborated as directed became compounds of appetizing quality.

C. R. WHITEHEAD, *Secretary.*

PHILADELPHIA.

The May meeting of the Philadelphia Branch of the American Pharmaceutical Association was held on Tuesday evening, May 13th, at the P. A. R. D. Building, 2017 Spring Garden Street. Previous to the evening's regular program, many of the members enjoyed a dinner and a social hour in one of the private dining rooms of the Lorraine Hotel. Dr. J. Leon Lascoff, member of the New York State Board of Pharmacy and Chairman of the A. Ph. A. Book of Unofficial Formulas, and Prof. Curt P. Wimmer of the New York College of Pharmacy were the guests of the evening.

The meeting was presided over by President Harrisson, and in the absence of Secretary Nichols, Prof. Ivor Griffith was called upon to read the minutes of the previous meeting. The following nine people were then reported for membership in the parent organization and were duly elected to the local branch: Dr. L. K. Sung, M. L. Rothman, Morris Kramer, R. L. Moser, S. B. Austin, F. E. Lehman, (Miss) K. P. Urch, D. W. Steinberg, J. J. Rozboril.

The special feature of the evening was a most interesting and comprehensive report by Dr. Lascoff, of the work which the Committee on the Formula book has accomplished. Dr. Lascoff first described the method which was followed in collecting and indexing formulas and also showed how the formulas were divided into groups. A series of cards illustrated the groups and designated the number of formulas to be found in each. Pharmaceutical specialties, cosmetics, toilet preparations, veterinary remedies, poultry foods and medicines, technical formulas, such as insecticides and cleaning fluids, beverages, syrups and many other groups make up the complete list.

During the course of his discussion Dr. Lascoff showed more than one hundred samples, which had been prepared from the various formulas. Many of these were prepared in duplicate, one exhibiting the preparation as properly compounded and the other showing the same preparation as prepared by faulty manipulation.

At the close of the paper there was considerable discussion by those present. The following motion was duly passed and was ordered sent to Dr. Lascoff: that Chairman Lascoff should appoint a Committee on Scope to consider the extent of inclusion of non-pharmaceutical products in the book of Unofficial Formulas.

The suggestion was offered that the book be published in two parts, the first to contain pharmaceutical formulas and the second to contain non-pharmaceutical preparations or specialties. It was also the consensus of opinion of the members present that the book should not be called the Unofficial Formulary, due to the likelihood of the possible abbreviation being U. F., which might be confused with N. F.; the name A. Ph. A. Formulary was suggested and recommended to the Committee and the Association.

A vote of thanks was given to Dr. Lascoff and the accompanying guests for their kindness in presenting this valuable work to the Branch. The meeting adjourned at 11:15 P.M.

ADLEY B. NICHOLS, *Secretary*.

INTENSITY OF FLASHLIGHT MATERIALS.

The photographic intensity values of Eastman flash powder, which contains magnesium and other metallic substances, magnesium powder and magnesium ribbon on ordinary, orthochromatic and panchromatic plates, have been investigated by E. Huse ("Communication 189," Eastman Kodak Laboratory). Results show that the intensity of the flash powder is greater when determined on ordinary (blue sensitive) materials than when orthochromatic and panchromatic materials are used. The reverse is true in the case of magnesium powder and magnesium ribbon. The presence of metals other than magnesium in flash powder tends to give a larger proportion of radiation into the region of shorter wave-lengths. This may be considered as partly responsible for the higher relative photographic intensity of this material as determined on ordinary photographic materials. It is also probable that the presence of the accelerating agent causes combustion to take place much more rapidly, and at a higher temperature in the case of flash powder than with magnesium powder and magnesium ribbon. This higher temperature also tends to cause a greater portion of the energy to be radiated at the shorter wave-lengths.

THE ABRAMS INVESTIGATION BY THE SCIENTIFIC AMERICAN.

No mention has heretofore been made in these columns of the Abrams treatment; perhaps a brief record should be made and this is the only reason for doing so. Dr. Abrams' theory, in brief, "considers the human blood as a condenser of the multitudinous vibrations occurring within the human body. He perfected a delicate apparatus which he claimed to be able to 'tune in' on these vibrations, detect abnormalities and thus diagnose disease. Then, by means of an instrument called the 'oscilloclast,' he claimed to be able to set up counter vibrations to counteract and ultimately destroy the vibrations caused by the disease."

The *Scientific American* sought to make a scientific investigation, but according to its reports in recent issue the progress made thus far is a disappointment. Since the investigation was proposed the founder of the "electronic" method has died; comparatively a poor man a dozen years ago his estate has, since his death, been valued at 5 millions or more.

ASSOCIATION BUSINESS

AD INTERIM BUSINESS OF THE BOARD OF DIRECTORS.

Office of the Secretary, 192 Roseville Ave., Newark, N. J.

LETTER NO. 17.

To the Members of the Board of Directors:

86. A correction.

87. Location of Headquarters Building: Motion No. 22 (see item 79, p. 375, Letter No. 15) has been lost. This means that the Board of Directors has voted against deciding on any definite location for the headquarters building at this time.

88. Plans and Suggestions for Headquarters Building: Motion No. 23 (see item 79, p. 375, Letter No. 15) has been carried. The combined committees on Headquarters Fund, Drs. Beal and Dunning, chairmen, are therefore instructed to present at the Buffalo meeting definite recommendations for the (city) location of the proposed headquarters building, together with an estimate of the (minimum) cost of such a building, suitable to the needs of the Association, and of the endowment necessary for its maintenance.

89. Division of Headquarters Fund for Building and Endowment: The vote of Motion No. 24 thus far is two in favor, one against, five not voting and three not heard from at all. The following comment has been received:

Dr. Arny writes:

"I would prefer to wait until I get Dr. Dunning's views on the subject."

Mr. Beringer writes: (on voting card)

"I move that this motion be tabled as such action would be too hasty."

(in letter following voting card)

"I am returning today postal card issued along with Letter No. 16."

"I feel that on Motion No. 24, we should go slow. It is almost too early to fix a hard and fast rule as to the apportionment of the money received in the campaign for a Pharmacy Building Fund. I quite agree with the suggestion that a portion must be set aside as a permanent endowment or maintenance fund, but to determine arbitrarily at this time, before we know what the cost of the ground and building may be, that this reserved fund shall be 50% of the total receipts might prove a handicap or impediment in carrying out the purpose of the campaign. I think we can well afford to leave this motion rest for a while until we have a more definite idea of the amount that will be required for each purpose; hence my suggestion that this Motion No. 24 be laid on the table.

Yours very truly,

GEORGE M. BERINGER."

Dr. Beal writes:

"Owing to a temporary indisposition of my secretary, I have been greatly delayed in clearing up arrearages of correspondence among which are Board Letters 15 and 16.

Referring to Mr. Beringer's remarks in opposition to the use of the title Headquarters Building, Mr. Beringer is doubtless unaware of the fact that at the outset the title used was 'A. Ph. A. Home.' Later on it was discovered that another organization which was engaged in establishing a Home was receiving part of the proceeds intended for the A. Ph. A. and that in fact some of our own members had subscribed towards the other project thinking they were subscribing for the benefit of the A. Ph. A. For this reason it was decided to use the title Headquarters Building during the progress of the campaign and to defer the actual naming of the building until some time in the future. In other words, the term headquarters building was in no sense intended as a permanent title, but merely to distinguish our project from the project of another association and also to make clear the fact that it was intended as headquarters for A. Ph. A. activities and not as a place of retreat for indigent pharmacists.

"In my opinion, the actual naming of the headquarters building should be deferred for the present, and until after an opportunity for discussion at an annual meeting of the Association.

"I am also of the opinion that an attempt to apportion the funds collected between building and maintenance should likewise be postponed until after the Association has had the opportunity of discussing and passing upon it at an annual convention.

"The Association did not create the Board of Directors for the purpose of governing the Association, but for the purpose of carrying the Association's will into effect. Therefore,

in all matters of importance, where there is no emergency demanding immediate action, the effort should be made to ascertain the will of the majority of the members of the Association and then attempt to carry its will into effect.

"Regretting the enforced delay in replying to Letters 15 and 16, I remain,

Very truly yours,

J. H. BEAL."

In view of the vote on this motion, or, rather, the lack of a vote it may be unnecessary to formally lay this motion on the table. The Chairman of the Board is requested to rule on the matter.

90. Election of Members: Motion No. 25 (see item 86, p. 486, Letter No. 16) has been carried. Applicants numbered 353 to 371 are therefore declared elected.

91. Acknowledgment of Hancock Resolutions: The following letter has been received from James E. Hancock, son of the late John F. Hancock.

"Permit me to acknowledge the receipt of a copy of the Resolutions passed by your Board as a tribute to the memory of my father—John F. Hancock.

"On behalf of my mother especially and of the other members of our family I wish to thank your Board and the American Pharmaceutical Association for the very loyal expressions of affection that have been shown by them in their several tributes to my father's memory and for the expressions of respect that were given him during life as well.

Very truly yours,

JAMES E. HANCOCK."

92. Additional Appropriation for Headquarters Committee: (Motion No. 26) It is moved by LaWall, that an additional appropriation of $2000 be made to the Headquarters Building Campaign Committee.

93. Railroad Rates for Annual Convention: The following communication has been received from Secretary Day:

"I have been in correspondence with several of the railroads in regard to rates for our coming annual convention in Buffalo. In order to secure a rate of a fare and a half on the round trip on the certificate plan, we would have to secure certificate receipts from 250 members. We failed to secure this number either at the New Orleans convention or at Cleveland and I am not encouraged to believe that we would do better at Buffalo. Last year, at Asheville, we did not apply for convention rates on the certificate plan for the reason that we had the advantage of summer tourist rates; this year, at Buffalo, we will again have the advantage of summer tourist rates, via Niagara Falls.

"I am informed that summer tourist fares will be in effect to Niagara Falls from May 15th to September 30th with return limit of tickets October 31st. These tickets permit stopovers, and as the summer tourist fares are only slightly higher than the convention rates, it is my opinion that the best plan for us will be to take advantage of the tourist fares via Niagara Falls. We shall probably have 500 persons in attendance at Buffalo, but many will use automobiles and some others will desire a longer limit of stay than convention rates afford and would, therefore, purchase summer excursion tickets anyway. The result would almost certainly be that we would fail to get the convention rate and those who planned for that rate would then fail to obtain any reduction whatever. In view of the fact that the summer excursion rates are only slightly higher than the convention excursion rates and that they allow greater privileges for stopovers and longer stay, I have thought it unwise to make application for convention rates.

"The summer tourist rates from points named below to Niagara Falls, N. Y., via Buffalo, with privileges of stopover at Buffalo are as follows (round trip fares):

"Boston, $32.57; Albany, $19.52; New York, $28.24; Philadelphia, $26.97; Pittsburgh, $16.00; Cleveland, $11.78; Columbus, $19.73; Cincinnati, $25.15; Baltimore, $27.13; Washington, $28.73; Detroit, $14.40; Grand Rapids, $22.30; Chicago, $30.10; Milwaukee, $35.00; Louisville, $32.03; Indianapolis, $26.90; Minneapolis, $53.60; St. Louis, $41.10; Kansas City, $56.60; Omaha, $58.80. These represent a reduction over the straight fare of approximately 20%. On the convention excursion rate of a fare and a half for the round trip the reduction would be 25%.

"Arrangements may also be made in some cases for trips partly by rail and partly by boat—thus the Michigan Central offers tickets from Chicago to Detroit by rail and Detroit to Buffalo by boat without additional charge.

"Where a sufficient number of persons travel together, special cars can be provided. It is suggested that such arrangement may

be made through the local branches of the Association.

"If these suggestions have your approval, will you place them before the Board of Directors?

"With kind regards, I remain,

Yours very truly,

WM. B. DAY, *Secretary.*"

94. Delegates to Various Meetings: The following communication has been received from President Arny:

"Will you kindly bring the following items to the attention of the Board of Directors.

"1. Dr. H. C. Fuller of Washington has been appointed a delegate from the American Chemical Society to the Fourth Congress of Industrial Chemistry scheduled to be held at Bordeaux on June 15th. He will also represent the National Research Council and is willing to act as delegate from the A. Ph. A. While I favor the proposition I do not know whether it is within my power to appoint delegates to meetings not upon our regular list and therefore ask you to submit the matter to the Board of Directors. A motion approving of the proposition and confirming my selection of Dr. Fuller would cover the matter.

"2. As to delegates to the meetings of state pharmaceutical associations, I am finding it difficult to make selection along the lines laid down by the House of Delegates at the Asheville meeting, 'preferably persons not members of the association to which they are sent.' Thus in case of the Oklahoma meeting this month I had time to appoint Mr. Meyer only by sending my letters to Mr. Meyer and Secretary Day by special delivery. It is my impression that Chairman Beal rules that my appointees as delegates need not be confirmed by the Board of Directors. If this is so, my task of finding delegates for the state association meetings will be much simplified. Obviously, as a matter of record, I will notify you of all such appointments made by me.

"3. In discussing this matter in the Bulletin of the Board of Directors will you please request the members of the Board to notify me as soon as possible what state meetings they purpose to attend; that is, associations in which they do not hold active membership. It will be recalled I wrote each member of the Board of Directors as to this matter some months since, but the letters were premature, as none could commit themselves at so early a day. I hope each member of the Board of Directors will qualify as a delegate. Incidentally, I will attend the meetings of the New York, New Jersey and Pennsylvania associations, but as A. Ph. A. President rather than as a delegate.

Cordially yours,

H. V. ARNY."

(Motion No. 27) It is moved by Fischelis that President Arny be empowered to appoint Dr. H. C. Fuller to represent the A. Ph. A. at the Fourth Congress of Industrial Chemistry.

The members of the Board are urged to notify Dr. Arny of their intentions to attend state association meetings.

95. National Formulary Committee Representation on the Conference on Pharmaceutical Research: The following letter has been received from Prof. Scoville:

"At the last meeting of the National Conference on Pharmaceutical Research held in Asheville, N. C., in September 1923, the Committee of Revision of the National Formulary was invited to be represented by an 'unofficial observer' with a view to the Committee becoming a member of the Conference.

"The undersigned was appointed the 'observer' and he attended the meetings of the Conference and later reported to the National Formulary Committee in favor of joining the Conference.

"In thus recommending membership in the Conference I was not unmindful of the fact that the American Pharmaceutical Association is now a member of the Conference, and that the N. F. Committee is already represented therein indirectly through the parent body; but inasmuch as the Committee of Revision of the United States Pharmacopœia is directly represented, in the Conference, and also since the Research Fund of the Association is derived from the profits of the National Formulary and in the granting of awards from this fund, the Association has directed that 'preference shall be given to such applications or subjects as are recommended by the Committees of Revision of the United States Pharmacopœia or the National Formulary' (JOUR. A. PH. A., 1917, pp. 1099–1100), it seems desirable that the N. F. Committee be directly represented.

"Accordingly, the Committee has voted to apply for membership in the Conference

with the proviso 'that the annual fee for membership in the Conference be supplied from the Research Fund of the A. Ph. A. by consent of the Directors of the A. Ph. A.'

"This proviso had the approval of Dr. H. V. Arny, Chairman of the Committee on Research of the A. Ph. A. at the time of its adoption, and in fact was proposed by him. (*Motion No. 28*) *I therefore move that the Board of Directors of the A. Ph. A. approve of membership of the National Formulary Committee in the National Conference on Pharmaceutical Research, and direct that the annual fees for such membership be paid from the Research Fund of the A. Ph. A.*

Yours very truly,

WILBUR L. SCOVILLE."

96. Applicants for Membership: No. 372, Dr. Charles A. Svoboda, Canadian Pacific R. Co., Belgrade, Yougoslavia; No. 373, Carson McAlpin Delon, 405 W. Markland Ave., Kokomo, Ind.; No. 374, Lawrence J. Miller, 422 Locust St., McKeesport, Pa.; No. 375, Paul Herman Thompson, Battle No. 7, Chapel Hill, N. C.; No. 376, Archibald William Palmer, Chapel Hill, N. C.; No. 377, James Frank Carrigan, Chapel Hill, N. C.; No. 378, Jesse Alton Meacham, 34 Steele, Chapel Hill, N. C.; No. 379, Ralph Parker McNeely, Chapel Hill, N. C.; No. 380, James Merritt Spoon, Chapel Hill, N. C.; No. 381, Frank Steven Goodrum, Chapel Hill, N. C.; No. 382, Lewis H. Davis, 80 Beekman St., New York City; No. 383, Frederick Alter, 338 Marshall St., Elizabeth, N. J.; No. 384, Joseph A. Trainor, 450 Dunham Ave., Mt. Vernon, N. Y.; No. 385, Walter Henry Cousins, 1011 Insurance Bldg., Dallas, Texas; No. 386, Ted Wendell Simpson, 2108 E. John, Seattle, Washington; No. 387, Joseph G. Bode, Jr., 120 French Street, New Brunswick, N. J.; No. 388, A. B. Lemon, 3435 Main St., Buffalo, New York; No. 389, Morris Kramer, 627 North 2nd St., Philadelphia, Pa.; No. 390, Dr. Le K. Sung, c/o Yuen Fong Cotton Yarn Trading Co., 566 North Soochow Rd., Shanghai, China; No. 391, Marcus Lewis Rothman, 3542 No. 23rd St., Philadelphia, Pa.; No. 392, William Jennings Stoneback, 145 No. 10th St., Philadelphia Pa.; No. 393, Robert Rowen, 1820 W. Girard Ave., Philadelphia, Pa.; No. 394, Jacob Bass, 992 N. 6th St., Philadelphia, Pa.; No. 395, Abraham Hyman Nowak, 1908 N. 32nd St., Philadelphia, Pa.; No. 396, Nathan Belvo, 3115 Morse St., Philadelphia, Pa.; No. 397, Max J. Beck, 2617 S. Franklin St., Philadelphia, Pa.; No. 398, Edward A. Novak, 145 No. 10th St., Philadelphia, Pa.; No. 399, Lewis G. Freeman, 1644 Allengrove St., Frankford, Philadelphia, Pa.; No. 400, Charles Clifton Pines, 145 North 10th St., Philadelphia, Pa.; No. 401, Marin S. Dunn, 145, N. 10th St. Philadelphia, Pa.; No. 402, Charles Wesley Brodwater, 127 New St., Bridgeton, N. J.; No. 403, Ralph Leonard Caluert, 2023 Spencer St., Philadelphia, Pa.; No. 404, Edward J. Hughes, 145 N. 10th St., Philadelphia, Pa.; No. 405, Albert C. Kasper, 817 North Fourth Ave., Phoenix, Arizona.

(*Motion No. 29*) *Vote on Applications for Active Membership in the American Pharmaceutical Association.*

ROBERT P. FISCHELIS, *Secretary*,
Board of Directors, A. Ph. A.

PASTEUR AND PHARMACY.

The *Chemist and Druggist* of May 17 states that Pasteur studied for his B.Sc. at Besancon under Professor Desfosses. When Pasteur came to Paris he became acquainted with Balard who had been a pharmacist and with J. B. Dumas who had served as an assistant. In 1846 Pasteur was appointed assistant and worked in Balard's laboratory, when he was preparing his thesis on "Arsenous Acids and the Arsenites of Potassium, Sodium and Ammonia." In 1849 he went to the Strasbourg School of Pharmacy as assistant professor. An effort was made to have Pasteur appointed as examiner in pharmacy but the request was refused on the grounds that Pasteur was not a qualified pharmacist. It was at Strasbourg that Pasteur became acquainted with Bechamp, the pharmacist, who afterwards was an implacable adversary of Pasteur's doctrines.

JABORANDI WAS INTRODUCED AS A MEDICINE FIFTY YEARS AGO.

It has been about fifty years since jaborandi was introduced and experimented with at the Hospital Beaujon, Paris, and an account of the action and characters of the medicine was reported in the *Repertoire de Pharmacie* of March 25, 1874. The properties of the plant were said to have been discovered by Dr. S. Continho of Pernambuco.

The Library of the New York Botanical Garden has acquired a most important collection of books on botany. The collection comprises about five thousand volumes and a still larger number of pamphlets and unbound volumes. It was purchased from the City of Geneva, Switzerland.

COMMITTEE REPORTS

REPORT OF COMMITTEE TO SOLICIT AMERICAN AID FOR CHILDREN OF GERMAN APOTHECARIES.

It will be remembered that a special committee, representing both the American Pharmaceutical Association and the National Association of Retail Druggists, was organized last winter to solicit American aid for the needy, in some cases fatherless, children of German apothecaries.

Pharmacists in this country responded promptly and liberally to the appeal published by the committee and food packages began going forward in March to the children whose names had previously been obtained from the German Pharmaceutical Society. During recent weeks the committee has been receiving letters of thanks from the mothers of the children who are recipients of the packages, letters which tell, better than anything that the committee might say now in thanking those who have contributed to the relief fund, how urgently those food packages were needed—and how gratefully they have been received.

Frau Ulrich writes:

> "What great joy and excitement was caused by the receipt of your abundant food package! Many, many thanks to the kind donors who have thought of us in our great need....My husband is paralyzed from a stroke which he suffered one year ago and in consequence is not able to work. So we are penniless with our two children four and fourteen years old. The only means we have come from the sale of our household goods and from some friends helping us. Your kind and rich donation relieved me from the hardest worries for some time. I wish from the bottom of my heart that the good colleagues of my husband will be blessed for their kindness in thinking of their poor fellow workers on the other side of the ocean."

Frau Apotheker Rausch writes:

> "I thank you very much for your kind words and the rich package. As the proverb says, 'When need is greatest, God's help is nearest.' There are always good people in the world and you belong to them. All the good things came just for Easter....Now the little one, eleven months old, can drink as much milk as he wants to for some time. You made us so happy."

There are many such letters, all expressing appreciation for the food packages, all showing that the need for them was very real.

The third shipment of food packages was sent late in May. Through the generosity of those who subscribed to the fund it has been possible to send to the children, at a time when their need was greatest, more than two tons of flour, 1500 pounds of rice, 600 pounds of sugar, 1500 one-pound cans of condensed milk and other food supplies so necessary to the growing child.

American pharmacists serving on the committee included H. V. Arny, president of the A. Ph. A.; John H. Webster, president of the N. A. R. D.; H. C. Christensen, A. R. L. Dohme, Jacob Diner; Clarence O. Bigelow, treasurer, 106 Sixth Avenue, New York City; and Clyde L. Eddy, chairman.

THE NEW PHARMACOPŒIA WILL NOT BE READY FOR SOME TIME.

The annual meeting of the Board of Trustees of the United States Pharmacopœial Convention was held at the Hotel Washington, Washington, D. C., May 2.

The report made by Chairman E. Fullerton Cook, of the Committee of Revision, was one of progress. The U. S. P. X is still in the process of manufacture and the Board authorized conferences by Revision members on some of the important subjects not yet decided. Arrangements are being made for the reading of final proofs by a number of experts in order to eliminate past errors in so far as is humanly possible. Six sets of abstracts of proposed changes from the U. S. P. IX have been published in the JOURNAL OF THE A. PH. A. This is done in order to enable those who are to use the Pharmacopœia to study the changes and communicate with the chairman of the Committee of Revision, in case any objections are to be made. Chairman Cook called attention to the International Pharmaceutical Federation and the work being done to unify the pharmacopœias of the world. It is likely that the National Research Council will appoint a

committee on pharmacopœial work. In closing his report, Chairman Cook paid a tribute to the memory of the late Dr. J. M. Francis who was a very useful member of the Committee of Revision. He exhibited a copy of the Chinese Translation of the U. S. P. IX, made by permission of the Board.

Chairman of the Board Dr. James H. Beal made a report covering the administrative affairs during the past fiscal year. The Board of Trustees represents the Decennial Convention during a period of ten years and controls all financial and other business affairs.

The Secretary of the Board, Dr. Henry M. Whelpley, made a verbal report followed by a detailed statement, covering the transactions of his office, and, particularly, the sales of pharmacopœias, which have now reached a total of almost 80,000 for the Ninth Revision. Of the Spanish translation, nearly 2000 copies have been sold.

The Treasurer of the Convention, Samuel L. Hilton, reported as custodian of the funds, showing that sufficient money would be on hand to cover the expense of printing the new Pharmacopœia. This favorable condition has not occurred at the time of the printing of any previous revision of the Pharmacopœia.

The Board had previously called for bids for the printing of the U. S. P. X. They were opened at the meeting and the award for both the English and the Spanish translation was made to the J. B. Lippincott Company of Philadelphia, which firm has been printing the Pharmacopœia for nearly half a century. It will probably require about a year for the Pharmacopœia to pass through the press and the Board of Trustees will fix a date when the Pharmacopœia will become official, some months following the time it is placed on sale. The first printing will consist of from twenty-five to fifty thousand copies in order to supply the demand of the entire country without delay. The Board cannot at this time approximate the date of publication. The U. S. P. IX was placed on the market in 1916, making the new Pharmacopœia due ten years later or in 1926.

The Pharmacopœia is copyrighted and, in order to make use of even portions of the text for comment, permission must be given by the Board of Trustees. A committee consisting of Chairman Beal, Secretary Whelpley and Dr. George H. Simmons, was appointed to report on a plan of handling applications for use of the U. S. P. X text. The charge for the use of U. S. P. IX text varies from a few dollars to a few thousand dollars. The Board of Trustees consists of Dr. James H. Beal of Urbana, Ill., chairman; Dr. Henry M. Whelpley of St. Louis, secretary; Prof. E. Fullerton Cook of Philadelphia, *ex officio* member as chairman of the Committee of Revision; Dr. Reid Hunt of Boston, Mass., *ex officio* member as president of the U. S. P. Convention; Dr. S. Solis Cohen of Philadelphia; Dr. George H. Simmons of Chicago; Dean Frederick J. Wulling of Minneapolis, Minn.

The 1925 annual meeting will be held the first Friday in May of that year. Thus far in this decennial period the Board has not found it necessary to hold any special meetings.

HENRY M. WHELPLEY, *Secretary.*

ST. LOUIS, MO.,
MAY 7, 1924.

SAFEGUARDING DRUGS DISCUSSED.

Safeguarding the nation's drug supply is the joint responsibility of the officials charged with the enforcement of the Federal food and drugs act and the drug manufacturers, Dr. W. W. Skinner, assistant chief of the Bureau of Chemistry, United States Department of Agriculture, told a convention of the American Drug Manufacturers' Association, on April 9, in New York City.

Speaking to the subject, "The Relation of the Bureau of Chemistry to the Drug Industry," Dr. Skinner pointed out that the drug manufacturers in coöperating with the Bureau of Chemistry in raising the standards of purity for drugs and in checking misbranding and adulteration were not only serving the interests of their customers but were also helping to free the manufacturers of standard products from competition with adulterated, debased products.

Other work of the Bureau of Chemistry of interest to drug manufacturers outlined by Dr. Skinner was the production of new chemicals from so-called waste products; the development of accurate methods of analysis for drug products is another problem of joint interest to the drug control official and to the drug manufacturer.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Board of Directors, A. PH. A.: JAMES H. BEAL, *Chairman;* S. L. HILTON, *Vice-Chairman;* ROBERT P. FISCHELIS, *Secretary;* CHARLES H. LAWALL, HENRY M. WHELPLEY, JOHN G. GODDING, GEORGE M. BERINGER, CHARLES E. CASPARI, W. L. SCOVILLE. *Ex-Officio:* H. V. ARNY, President; WILLIAM B. DAY, Secretary; E. F. KELLY, Treasurer. Committee on Publications: R. P. Fischelis, *Chairman;* H. V. Arny; Geo. M. Beringer; E. F. Kelly; Wm. B. Day; A. G. DuMez, E. G. Eberle.

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"YOUR DEEDS ARE KNOWN IN WORDS THAT KINDLE GLORY FROM THE STONE."

Director of Publicity E. L. Newcomb has addressed a message full of action to the committeemen on the Headquarters Building Fund in the different states. Parts of the address are quoted: "For the first time in the history of America, organized pharmacy is beginning to make itself felt. Retail druggists from one end of the country to the other are aroused to the necessity of throwing their full force and energy into a combination of drug interests which will effectively protect and develop pharmacy...."

"All druggists have their time more than taken up by the complexities of the present-day drug store. The time has come when we must discriminate. The more important things must be done first. The headquarters and uniting of pharmacy project is the *most vital issue that has ever been placed before you.* The welfare of your business demands that you give it serious and immediate attention. Are you doing your part? Are you coöperating with your fellow committeemen? Are you taking advantage of the opportunity now before you?..."

"Over $300,000.00 has already been subscribed. One million dollars is needed. You must realize the serious attention which retailers are giving when you scan the list of advance subscriptions. *Send in your subscription now.* Make it as large as you can. Get all other druggists in your community to subscribe. Help to show the American public what pharmacy is and its necessity to the community. Help to unite pharmacy so that we may solve our problems."

WAR GASES USED IN THE TREATMENT OF DISEASE.

President Coolidge has been treated with chlorine gas for a severe cold. Prior experiments had been made at various hospitals with some degree of success. More recently mustard gas has also been used and is said to be quite as effective as chlorine. While the results of these experiments have been encouraging they are not considered sufficiently conclusive. It is said that mustard gas will probably prove a valuable retardant for tuberculosis.

BULLETINS OF THE DRUG TRADE BUREAU OF PUBLIC INFORMATION.

Director Robert P. Fischelis has recently issued Bulletins 17, 18 and 19. The first relates to the election of officers of the American Drug Manufacturers' Association, see p. 494, May JOUR. A. PH. A. Bulletin B-18 relates to the National Academy of Pharmacy which will be established in New York City and is the result of the effort of Dean Jacob Diner and other leading pharmacists, among them Jacob Seley, Peter Diamond, Meyer Sambur, Robert S. Lehman, Samuel Dworkin, Henry B. Smith and Gustav Horstmann. It is planned to erect in New York City a structure which will contain a complete library, a research laboratory, a staff of pharmaceutical technicians, legal experts to scrutinize legislation and an employment bureau. A provisional charter for the Academy has been granted by the State

of New York and the membership will be composed of active members, associate fellows, honorary fellows and others. Bulletin B-19 relates to the Code of Ethics adopted by the American Drug Manufacturers' Association.

GINSENG AS AN EXCHANGE.

In a paper presented to the Section on Historical Pharmacy, A. Ph. A., several years ago Dr. Edward Kremers referred to the fact that in the early history of this country ginseng afforded the means of exchange between China and the United States. This method still obtains to a certain extent for transferring funds from the United States to China. Recently the volume of imports of ginseng into Hong Kong has increased. A list of importers in China may be had by addressing the Bureau of Foreign and Domestic Commerce, Washington, D. C.

OPIUM TRAFFIC GAINS NEW HOLD IN CHINA.

According to newspaper reports the practice of opium smoking, in China, is increasing. It is said that officials encourage the farmers to grow opium, even force them to grow the plant because the traffic is monopolized by them and they thrive upon it. Last December the American Minister in Peking protested against the enforced growing of opium in Fukein province where the officials were forcing the farmers who were members of Christian churches, and did not want to do so, to grow opium poppy. The American Government has a treaty with China to the effect that Christians are not to be forced to do things against their religious beliefs.

INTRAVENOUS SOLUTIONS NEED NOT BE ISOTONIC.

An interesting and instructive contribution appears in the *Medical Review of Reviews* for January, entitled "Intravenous Solutions Need Not Be Isotonic." Consideration is given to the influence of concentration and osmotic pressure. The article is by David Loeser of New York, and has information for physicians and pharmacists relating to the subject discussed. The author concludes that when large volumes of solutions must of necessity be injected intravenously, to replace blood volume, for instance, these solutions should be isotonic with the blood, but research has proved that a solution need not be isotonic with the blood stream if a small volume only of a more concentrated solution is injected.

The current number of the *National Geographic Magazine* is of more than usual interest to pharmacists on account of the illustrated article on "Exploring the Mysteries of Plant Life" by William Joseph Showalter.

The current issue of the *Bulletin of Pharmacy* has a full page illustration showing the American Pharmaceutical Association race for funds for the headquarters building. A number of persons sketched are labeled while others have been running such a pace that evidently their designation has become lost.

Al Falkenhainer, as editor, has issued the first number of the *Druggists' Mutual*, the purpose of which is to keep druggists informed in regard to fire insurance. It is the official organ of the Druggists' Mutual Insurance Company of Iowa.

THE FRENCH EXPOSITION IN NEW YORK.

A successful exposition, at Grand Central Palace in New York, of French imports closed May 3. The displays showed to good effect the arts, commerce and industries of France. An exhibit of interest was that of E. Fougera & Co., representing a French pharmacy, and attracted much attention. As a memorial to the deeds of the A. E. F., the French government has presented a $50,000 Gobelin tapestry to America and this was on exhibition; it portrays a group of American soldiers embarking for France; in the background Independence Hall is shown and under the border is a quotation from President Wilson's message: "The right is more precious than peace. We have no selfish ends to serve. We desire no conquest, no dominion. We shall fight for democracy." The tapestry will be placed on permanent exhibit in the new Philadelphia Art Museum when completed.

PERSONAL AND NEWS ITEMS.

The honorary degree of Doctor of Pharmacy was conferred upon **John G. Godding** on the 50th anniversary of his graduation from the Massachusetts College of Pharmacy at the commencement exercises of the college, May 20th. Mr. Godding has been in the retail drug business at the same location in Boston's exclusive Back Bay district since 1884. He has been trustee of the college since 1886 and its treasurer since 1890. He joined the American Pharmaceutical Association in 1875 and was president 1912–1913.

W. L. Scoville, of Detroit, **John Culley,** of Ogden, **Joseph Jacobs,** of Atlanta, **Louis Emanuel,** of Pittsburgh, and **Frank E. Morgan,** of Philadelphia, were honored by the Philadelphia College of Pharmacy and Science with the degree of Master in Pharmacy; all of the recipients were present with the exception of Mr. Emanuel, who was prevented from coming by sickness.

William F. Werner, of Indianapolis, member of the A. Ph. A., is one of the nominees for state representative from Marion county.

Director of Professional Education in New York, **Dr. Augustus S. Downing,** has threatened to resign from the position in which he has served for twenty years, unless the State Medical Society and the Kings County Medical Society get solidly behind the Carroll bill amending the public health law.

W. Wilson McNeary, who has for some years had charge of the drug department of the Polyclinic and Medico-Chi Hospitals, has been elected superintendent of both of these hospitals, which are units of the post-graduate courses of the University of Pennsylvania.

J. Leyden White, nationally known by his pen name, Joel Blanc, has become editor of the *American Paint and Oil Dealer* of St. Louis.

Howard B. French, for many years president of the Philadelphia College of Pharmacy and Science, was recently injured in an automobile accident. He has, however, sufficiently recovered to be back again at his desk.

S. L. Hilton, ex-president of the American Pharmaceutical Association, appeared before the Committee of the House of Representatives in opposition to the bill for regulating the sale of viruses, serums, etc.

George Albert Gorgas, member of the American Pharmaceutical Association since 1884, has announced a gift of $50,000 to the Masonic Home at Elizabethtown, Pa.

Henry M. Whelpley has been appointed a member of the National Research Council Committee on State Archaeological Surveys of the Division of Anthropology and Psychology.

A tablet of bronze mounted on a granite slab was unveiled with fitting ceremonies on March 27th to mark the site of O. Henry's birthplace in Greensboro. Miss Charlotte Porter, daughter of Mr. and Mrs. Clark Porter, unveiled the tablet. Mr. Porter was a cousin of "O. Henry" and it was in his father's store that the distinguished short story writer received his drug store experience.

The J. A. Beard drug store of McComb, Mississippi, recently celebrated its 48th anniversary. Our fellow member, **John A. Beard,** is manager of this pharmacy.

Robert Lampa was the speaker at the monthly luncheon of the Drug and Chemical Section of the New York Board of Trade and Transportation, May 7th. The subject of his address was "The Drug Trade from Within and Without." He contrasted old methods of conducting a drug business with present-day methods. He urged the necessity for a wider consideration of the welfare of employees and a promotion of the spirit of coöperation.

W. H. Whisenant of San Antonio, president of the Texas Pharmaceutical Association, has been assigned a place on the program of the Texas State Medical Association for the subject "Shall We Have Competent Pharmacy?" It is contended that a public sentiment against the practice of pharmacy by those not qualified to do so must be aroused.

Leon Hale, president of the Florida Pharmaceutical Association, was the speaker at the May meeting of the Mortar and Pestle Society of the Florida School of Pharmacy. Part of the address related to the managing of the prescription department and the system followed in his pharmacy at Tampa.

Among the bequests made by the late **Max J. Breitenbach** was one of $25,000 to the New York College of Pharmacy. In his will he admonished his children to be frugal and generous, charitable according to their means; to always love, respect and assist one another; to remember that their best friend is the purse and when that is empty friendship is often but a name. He admonished his children to continue to cherish and love their mother; she shared every joy and sorrow with them.

Robert S. Lehman has been appointed organizer for the New York Pharmaceutical Conference. Mr. Lehman will assist in organizing new local associations, in obtaining members for the existing organizations and serving the membership in various capacities.

Romaine Pierson, publisher of the *Practical Druggist,* has sailed for Europe. He will return about August 1st.

Lehn & Fink, Inc., celebrated the fiftieth anniversary of their organization with a banquet, attended by about 150 guests, May 3. F. W. Fink, one of the founders of the corporation, was an honored guest. A number of addresses were made; among the speakers

were officers of the company; stories of interest were interspersed by Mr. Lampa in his address, and Mr. Murray briefly reviewed the policies of the firm. President Edward Plaut is in Europe; Joseph Plaut, chairman of the board of directors, was one of the speakers.

In commemoration of the event a book covering the history of the house has been published—edited by George M. Murray and arranged by Edward Wirsing. It is artistic in design; the contents record the firm's progressive business events and with it are shown concurrent developments of downtown New York.

OBITUARY.

RAOUL R. D. CLINE.

Dr. Raoul Rene Daniel Cline, professor of pharmacy and head of this department of the University of Texas, at Galveston, died May 20. His death followed a sudden illness Monday afternoon, the specific cause being cerebral hemorrhage, it is believed. He is survived by a daughter; Mrs. Cline died ten or more years ago. Dr. Cline had been with the medical department for twenty-nine years. He was born in Woodville, Tyler County,

R. R. D. CLINE.

Texas, on September 14, 1868; received his early education in Texas and his collegiate education at Gettysburg, Pa., and Lille, France. He received the Ph.G. degree in France and from the New York College of Pharmacy and the degree of M.D. at the University of Texas Medical College in 1909. He was a drug clerk in France and Houston, Texas. Dr. Cline also held a lawyer's degree and practiced law for a short time. The Texas Pharmacy Board members attended the funeral as a body.

The deceased was a man of high ideals, always brimful of his subject; interested in every advancement of pharmacy he was one of the foremost workers of the profession in Texas. Every movement toward higher standards in pharmacy had his active support and throughout the state are pharmacists in whom his ideals have been implanted. Texas pharmacists owe much to the deceased and their attachment for him has been expressed by scholarships of Texas Pharmaceutical Association, and now a memorial is being planned. He served faithfully and has left a name among Texas pharmacists that will endure and for many years be referred to with reverence and pride. He seldom failed to attend a state association meeting and was an untiring worker in its efforts. The writer mourns a friend who was always courteous, kind and generous almost to a fault—a co-worker of many years.

LOUIS RUBENSTEIN.

Louis Rubenstein, member of the American Pharmaceutical Association, pioneer druggist of Seattle, died March 27, aged 50 years. Mr. Rubenstein came to Seattle in 1899 on his way to Alaska, he returned to this city in 1903 and engaged in pharmacy with C. O. Osseward in the old New York block. This partnership was dissolved in 1906 and the deceased thereafter opened a pharmacy on Cherry St. near Second and in 1909 moved to the Green Building. In 1920 Mr. Rubenstein bought out the Osseward pharmacy and consolidated his two stores. The deceased was born in Tallahassee, Florida, and graduated from the Pharmacy Department of George Washington University. He was a Spanish war veteran and saw service in Porto Rico. He was widely known to the druggists of the Pacific Coast and also active in civic affairs. At the time of his death he was state chairman for the Headquarters Building Fund for Washington. He is survived by his widow.

M. Maurice Soenen, doctor in pharmacy, died at La Rochelle, France, April 20th. He held several municipal offices and was inspector of pharmacies, Pharmacist Major of the Army Reserve and Chevalier of the Legion of Honor. He wrote a history of pharmacy at La Rochelle.

Professor Lucien Courchet, professor at the Faculty of Pharmacy at Montpellier for more than thirty years, died at the age of 73 years. When he retired from the chair of botany at the Faculty, two years ago, he was awarded the Cross of the Legion of Honor. He published a two-volume treatise on botany and contributed to the flora of Madagascar and Indo-China.

SOCIETIES AND COLLEGES.

THE ASSOCIATIONS, STATE AND NATIONAL, AND THE A. PH. A. HEADQUARTERS BUILDING FUND.

The responses to the Headquarters Building Fund are so general that the mention of any particular organization indicates the spirit which moves and encourages all other organizations to give. Both state and national associations have not only expressed their whole-hearted approval of the purpose and the plan, but have given thereto, either as organizations or members. This comment is only presented as an introductory and the mention of contributors is more or less incidental because all have exhibited their support and enthusiasm; the giving is certain to follow, if not now a fact.

To become really enthused and appreciative the reports of Chairmen H. A. B. Dunning and E. L. Newcomb should be read. The campaign for funds will be continued throughout the summer so that all state associations will have the opportunity to share in this great work for American Pharmacy. The important thing is "to go over the top" *as soon as possible and close the campaign with subscriptions well over the mark.*

Many of the schools of pharmacy have largely contributed through faculty and student-body. Some of the schools prefer to present the subject to their students after the final examinations, others have responded before the close of the schools.

Up to the present no state association has permitted the opportunity of subscribing to the fund to go by, and the month of June will, doubtless, be a record breaker in contributions from these sources. For, after all, the associations will be most influential in directing whatever the building and the American Pharmaceutical Association stand for. The competition for rank in making donations is expressive of enthusiasm, of faith; the actual amount of money contributed is a relative proposition. *Do your very best and as promptly as possible!*

At the annual convention of the American Drug Manufacturers' Association the following resolution was unanimously adopted:

> *Resolved,* That the American Drug Manufacturers' Association endorses the project of the American Pharmaceutical Association to erect a building as a headquarters and home for American pharmacy.

The National Association of Boards of Pharmacy not only endorsed the Headquarters campaign, but also subscribed the sum of $1000.00.

The members of the Executive Committee of the National Association of Retail Druggists gave splendid support to the promotion of the Headquarters fund through the adoption of the following resolution:

> Every member of the committee is a member of the A. Ph. A. and as such is glad to endorse the plan for a headquarters for that association, but they do not have the right to endorse the plan as representatives of the N. A. R. D., inasmuch as our organization has never expressed itself in any way, shape, or form with reference to the project.

All of these actions are but added indications of the full realization by pharmacists that the drug interests of the country must coöperate closely if success is to be achieved in our various endeavors.

THE BUFFALO MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Within three months the seventy-second annual meeting of the American Pharmaceutical Association will have become part of the history of the Association, and it is safe to assume that definite preparations will have been made for the establishment of the Home for American Pharmacy. The object of this item is, however, to impress you with the nearness of convention week so that you will delay no longer in sending in the title of the paper

you will prepare for one of the Sections of the A. Ph. A.—for list of officers of the Sections see page X in any issue of the JOURNAL for this year; for the program see p. 485 of the May number; see also p. 492, and then advise the officers of the Section or Sections to which you will contribute a paper or papers. *Do it now, please!*

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIP PRIZES.

As at previous commencements schools of pharmacy have this year presented memberships in the American Pharmaceutical Association as prizes. The JOURNAL will be glad to publish the names of the prize winners and the school giving the prize. We have been advised of the following: St. Louis College of Pharmacy has awarded prize membership to Lawrence David Taylor of Canton, Missouri; the Massachusetts College of Pharmacy has awarded the following: in Pharmacy offered by Professor E. H. LaPierre to Lewis B. Jones; Analytical Chemistry by Dean Theodore J. Bradley to G. Ashley Matthews; Organic Chemistry by Treasurer John G. Godding to Robert A. Acheson; Materia Medica by President William H. Glover to Andrew Landini. University of Iowa College of Pharmacy has reported four prize winners: For highest rating in a competitive examination on recognition and description of organic drugs by Dean Wilber J. Teeters to Ernest B. Toalson; for highest rank in organic chemistry by Mr. Gus Scherling to Ralph Podzimek, both of these young men veterans of the World War; for highest rank in pharmacy by Prof. Zada M. Cooper to Miss Neoma Kistenmacher; Prof. R. A. Kuever's prize of a year's subscription to the JOURNAL A. PH. A. to first year student ranking highest in practical pharmacy was awarded to Raymond L. Rink. Prof. Ivor Griffith's Philadelphia College of Pharmacy and Science membership prize was awarded to Guerch Hornik, who also won the Frank G. Ryan Medal, perpetuated by the classmates of the latter (1884).

PUBLIC HEALTH WORK AT SUMMER SCHOOLS.

Surgeon General H. S. Cumming (U. S. Public Health Service) has sent out information relating to opportunities for public health studies at schools and universities during the summer. One of the communications referred to is entitled "Advanced Degrees" and is as follows:

During the next decade, hundreds and thousands of men and women will enter various kinds of public health work. A few will come from schools of public health with the M.D., D.P.H., or other special public health degree. A much larger number, probably, will enter public health work directly from private medical practice, from private nursing and from other occupations allied to public health work, without the advantages of special training for which an advanced public health degree stands.

The public health summer school has been established for such persons, also for physicians and others who have already entered the field of public health—sometimes rather suddenly—without having had the opportunity of special academic training. Those of either group may select at a conveniently located summer school two or more courses which will prove to have immediate value in public health work or in any form of preventive medicine, irrespective of the academic credit to be gained. Many, perhaps, will wish to consult at once the dean of the graduate school of the university at which they decide to do their work, so that a program of courses may be arranged which will lead to the C.P.H., A.M., M.S., Ph.D., Sc.D., D.P.H. or other advanced degree.

Most of the courses given by the University of California and the University of Michigan may be counted towards an advanced degree. Nearly all the courses offered by Columbia University and the University of Iowa are regularly scheduled for credit; those not specifically so indicated may be taken for credit by arrangement with the appropriate department or the dean of the college concerned.

Requests for announcements should be addressed to the Deans of the Summer Sessions.

AWARDING PRIZES FOR THE CHEMICAL ESSAY CONTEST.

Prizes in the various states are being awarded to winners of the chemical essay contest made possible by Mr. and Mrs. Francis P. Garvan of New York City as a memorial to their daughter. Six prizes of $20 were offered in each state and, aside from these, scholarships are also included for some of those making the best average. These awards represent six four-year scholarships at Yale or Vassar to the successful contestants. The scholarships in addition to tuition carry $500 a year in cash and are also the gift of Mr. and Mrs. Garvan.

ADMITTING A DEBT.

Seven hundred members of the senior class of the University of Pennsylvania have agreed to subscribe to its endowment fund $8 a year for eleven years and to allow the fund to accumulate until 1944, when it will be turned over to the treasurer with its accumulations. The sum will then be $92,500. This is an excellent example to senior classes of all colleges and universities. The money these students have paid for their education is much less in value than the education has cost, and the same applies to pharmacy students.

THE IMPORTANCE OF APPRENTICESHIP.

Chairman M. Richaud of the Paris Society of Pharmacy in his address criticized the new system of limiting the period of apprenticeship to one year. He contended that if one year of apprenticeship was sufficient, this apprenticeship should include a full year of practical steady work in preparing pharmaceuticals and general laboratory work. "Pharmacists should remember," he said, "that in accepting apprentices they should endeavor to give them training which cannot be had in the university, such as practical manipulation, counter work, etc." Chairman Richaud feared that the future of the French pharmacy was more or less imperiled by this limitation of the period of apprenticeship to one year.

MEMBERS OF PHI DELTA CHI REQUESTED TO SEND IN THEIR PERSONAL HISTORIES.

After being in course of construction for more than a year, the national History-Directory of the Phi Delta Chi fraternity is now nearing completion and it is planned to send the volume to the printer soon. All members of the fraternity (formerly known as Phi Chi) are urged to send their personal histories to L. C. Heustis, 5005 Park Avenue, Indianapolis, Ind., who is editing the publication.

Phi Delta Chi is a professional fraternity of pharmacy and chemistry, which was founded at the University of Michigan in 1883. Mr. Heustis is its national secretary; the other officers are:

Grand President, E. H. Thurston, of Los Angeles, Cal.; *Grand Vice-President*, A. B. Nichols, of Philadelphia, Pa.; *Grand Treasurer*, C. V. Nichols, of Anadarko, Okla.; and *Editor* of the *Communicator*, R. P. Hollenback, of Columbus, Ohio.

NATIONAL ASSOCIATION OF RETAIL DRUGGISTS' CONVENTION.

Plans for the twenty-sixth annual convention of the National Association of Retail Druggists, to be held in Washington, September 22 to 26, were discussed at the meeting of the District of Columbia Retail Druggists' Association, May 13. General discussion along this line occupied most of the meeting, the local druggists being thoroughly alive to the desirability of making the coming national convention the most successful ever. Several committees are working out the various phases of the program.

GOLDEN JUBILEE MEETING OF THE NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

Announcement has been made regarding the Golden Jubilee meeting of the National Wholesale Druggists' Association by the Committee on Arrangements and Entertainment. The announcement sets forth particulars regarding convention headquarters and other information. The meeting is to be held in Atlantic City from September 22–26.

PROPRIETARY ASSOCIATION OF AMERICA.

The forty-second annual meeting of the Proprietary Association of America was held at the Hotel Pennsylvania, May 13–14. Dr. William C. Anderson was delegate to the convention from the American Pharmaceutical Association. General Representative Edwin F. Kemp reported on the activities of his office, stating that 987 proposed legislative measures had received consideration and General Counsel Harry B. Thompson spoke of the import of some of these measures. J. A. Mitchell discussed the possibilities and difficulties of the extension of trade in South America. The functions of the Bureau of Foreign and Domestic commerce were set forth by Thomas W. Delehanty, assistant chief of the chemical division; a vote of approval was given him.

Frank A. Blair of New York was elected president for the ensuing year; other officers elected are: *First Vice-President*, E. K. Hyde, Buffalo; *Second Vice-President*, J. H. Howe, St. Louis; *Secretary-Treasurer*, Charles P. Tyrell, Syracuse, N. Y.; *members of the executive committee for two years*, R. R. Land, Binghamton, N. Y., and Harry T. Vars, Buffalo; *members for three years*, V.

Mott Pierce, Buffalo; John F. Murray, New York; Bradford V. Moore, Buffalo.

KANSAS PHARMACEUTICAL ASSOCIATION.

Kansas Pharmaceutical Association met in Topeka, May 13–15. Among the addresses of the convention were the following: "Drug Store Management and Display" by H. Pankow of Chicago; "Law Enforcement" by Attorney General of the State Charles B. Griffith; "Explanation of Laws" by H. H. Motter, Collector of Internal Revenue for Kansas. The Scientific Section was presided over by Dean L. E. Sayre. Among the papers discussed a number related to the forthcoming U. S. Pharmacopœia.

OKLAHOMA PHARMACEUTICAL ASSOCIATION.

At the recent annual meeting of the Oklahoma Pharmaceutical Association, Dean D. B. R. Johnson urged a campaign of education which would bring forcibly to the people the need of high-class service in handling drugs and the protection that the public actually needs. C. W. Richards of Ardmore, superintendent of the city schools, spoke of the drug store in small towns and cities as the place where young men assemble and pick up ideas that may redound to their upbuilding or to their detriment. He believed that this environment is forceful in forming the boy's character. Editor Walter H. Cousins of Dallas presided as toastmaster at the annual banquet. The officers elected are as follows: Don Machenheimer of Shawnee, *President;* Clarence Anderson of Hugo, *1st Vice-President;* W. M. Dodge of Elmore City, *2nd Vice-President;* and H. S. Shackelford of Wynnewood, *Secretary-Treasurer.* The association decided to eliminate the paid secretary-manager and renew the system of district meetings.

WOMEN'S AUXILIARY OF THE OKLAHOMA PHARMACEUTICAL ASSOCIATION.

At the recent meeting of the Women's Auxiliary of the Oklahoma Pharmaceutical Association it was voted to lend $100 to a girl student of the School of Pharmacy at the State University to assist in completing her education. Mrs. Bess Brewer of Oklahoma City was elected president of the Auxiliary and Mrs. H. S. Shackelford of Wynnewood, secretary.

CALIFORNIA PHARMACEUTICAL ASSOCIATION.

California Pharmaceutical Association convened at Pasadena, May 27–29. One of the principal addresses of the convention was made by H. S. Noel of Indianapolis on "Turnovers or How to Make More Money Out of the Drug Business." Another address was made by W. C. Kotteman, a public accountant, on "Analysis of the Drug Business." Much legislative matter was considered and acted upon.

OFFICERS-ELECT OF THE MINNESOTA PHARMACEUTICAL ASSOCIATION.

An election by mailed ballot of the Minnesota Pharmaceutical Association has been announced as follows: *President,* C. B. Johnson; *Vice-President,* Elizabeth Malerich; *Second Vice-President,* J. B. Christgau; *Third Vice-President,* S. J. Horn; *Secretary,* Gustav Bachman; *Treasurer,* H. Martin Johnson; *member of the executive committee,* C. C. Crosby.

PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

The Pennsylvania Pharmacist reports that President H. V. Arny, A. Ph. A., will deliver an address at the convention to be held at Bethlehem, June 17–19. Bethlehem is of unusual interest to strangers because of its picturesque environment, coupled with its wealth of historical association—local, national and religious. A number of buildings are still standing which were used as military headquarters during the Revolutionary War and for hospital purposes. Paul S. Pittenger, secretary of the Scientific Section of the American Pharmaceutical Association, will present a practical demonstration of the physiological standardization of drugs.

NEW JERSEY PHARMACEUTICAL ASSOCIATION.

The last pre-convention bulletin sent out by Secretary Jeannot Hostmann announced among those to be present at the convention at Lake Hopatcong, June 10–13, President H. V. Arny and President-elect C. W. Holton of the American Pharmaceutical Association; Ex-President of the National Association of Retail Druggists, Ambrose Hunsberger, and Secretary of the National Association of Boards of Pharmacy, H. C. Christensen. The ladies celebrated with a "Four Ring Circus" on

Tuesday night of the convention; Wednesday night, following the president's address, was given over to a banquet, and Thursday night was made merry and interesting by the "traveling" men.

NEW YORK PHARMACEUTICAL ASSOCIATION.

The New York State Pharmaceutical Association will hold its 46th annual convention at Lake Placid next week (June 17–20); the sessions will be held at the Stevens House. An interesting address of the meeting will be that of Arthur F. Sheldon (Human Engineer) on "The Science of Building the Drug Business." E. H. Breckon is president of the association and Dr. H. V. Arny is chairman of the committee on pharmacy and queries.

SAN FRANCISCO RETAIL DRUGGISTS' ASSOCIATION.

A spring festival of the local San Francisco drug trade was held May 7th. It was a highly successful affair and attended by a thousand or more. The event was held under the auspices of the San Francisco Retail Druggists' Association, the Registered Pharmacists, the Alameda County Pharmaceutical Association and Drug Travelers of California. The local wholesale houses and the California College of Pharmacy participated in making the affair a success.

ALBANY COLLEGE OF PHARMACY BUILDING PLAN DELAYED.

Due to failure of the Assembly to vote on the bill which would authorize the Albany County Board of Supervisors to deed land to the Albany College, its building plans have been delayed for at least a year. The Senate had passed the bill and there was no evidence of much opposition to the measure, hence, when it is brought up at the next session favorable action will more than likely be taken. The bill calls for an expenditure of $250,000.

VIRGINIA HAS ENOUGH QUALIFIED MEN FOR THE STATE'S NEEDS.

Commenting on figures given in his report Secretary A. L. I. Winne states that the decrease, since last year's report, of less than one per cent. of registered pharmacists has little significance, as it varies from time to time as men move in and out of the state. He believes that those qualified to practice pharmacy are amply sufficient to meet the pharmaceutical demands of the state.

KAPPA PSI AND ALUMNI ASSOCIATION OF THE UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY BANQUET.

The banquet of the Chicago Graduate Chapter of Kappa Psi was held Thursday evening, June 5th, at the Hotel Sherman in conjunction with the Alumni Association of the University of Illinois School of Pharmacy.

THE FUTURE SUPPLY OF PHARMACISTS.

Dean C. W. Johnson in a formal letter issued to pharmacists of the State of Washington urges them to interest themselves in high school students who soon will determine on their life work. He points out the importance of leading young men and women to think of pharmacy as a vocation—the opportunities of addressing schools are open to pharmacists; aside from directing more desirables to pharmacy there is the further suggestion in the letter that the evidence of professional pride inspires the laity with a higher regard for pharmacy and its mission.

BUILDING CONSTRUCTION IN PHARMACY.

In a recent editorial the *Pharmaceutical Era* comments on the many buildings for pharmaceutical institutions that have been completed, are contemplated and for which preparations are under way. With the completion of the A. Ph. A. headquarters and the present activities of the colleges of pharmacy, "it may be," concludes this editorial, " that the future pharmacist will look back upon the year 1924 as a period of greatest constructive effort."

COMMENCEMENT EXERCISES OF THE COLLEGES OF PHARMACY.

By the time this issue of the JOURNAL reaches our readers the commencement exercises of all schools of pharmacy will have been held. Programs and invitations of these interesting exercises have reached the office from most of them, and for this consideration general acknowledgment is expressed and the hope that with each succeeding year their success may be greater, that the alumni may go forward and achieve with the ideals and enthusiasm of and for pharmacy that have been inculcated by the faculties.

A CONFERENCE OF PALESTINE PHARMACISTS.

A conference of the pharmacists of Palestine was held March 26 and 27 under the auspices of the Jerusalem Central Branch of the Palestine Pharmaceutical Association. Two meetings were held on Wednesday at St. John Hotel and presided over by President Farid Haddad. The session was opened by reading telegrams from different branches. The first order of business was the election of officers and resulted as follows: *Chairmen*, F. Haddad, Jerusalem, and Isa Halaby, Jaffa; *Secretary*, J. Michlin, Jerusalem, H. Auerbach, Tel-Aviv; *Members of the Council*, A. Halaby, M. Hausdorf, S. C. and P. Gaitanopoulos, Jerusalem, R. Reitblat, Jaffa, H. Auerbach, Tel-Aviv, and R. Nassar, Haifa.

Following the election detailed reports were made by the officers of the association and these were discussed at length by the members.

The 2nd session was given over to the reading of papers. Among these were the following: "Ancient Medicine and Pharmacy" by S. C. and P. Gaitanopoulos; "Formation of Tariff on Drugs and Medicinal Preparations" by Siani Solomon; "Qualified Dispensers Employed by the Government" by M. Hausdorf; "Demands of the Colleagues of Palestine Who Could not Attend the Conference" by S. Tannous; "Degradation of the Profession in Hospitals Where Unqualified Pharmacists Are Still Employed" by E. Oplatka; "Inconveniences Resulting from Indifferent Prescription Writing by the Doctor" by Mrs. Lea Berman; "The Future Reorganization of the Association" by H. Auerbach.

The 1st session of Thursday was held at Grand New Hotel at which time the papers read at the preceding meeting were further discussed and the constitution and by-laws of the association revised. Chairman Isa Halaby of Jaffa presided.

The session of Thursday evening was a social affair given at the Allenby Hotel in honor of the attending delegates, attended by members of the families of the pharmacists and representatives of the Health Department and of the press. President Farid Haddad presided. The speakers of the evening were Dr. R. Oplatka of the Health Department and first honorary member of the association. J. Michlin spoke in behalf of the association. Dr. A. Behan spoke as the representative of the Jewish Medical Association and Dr. Kalbin on behalf of the Academy of Medicine. H. Auerbach spoke for the delegates. Among the guests were Dr. Tannenbaum and daughter, the former a director of Haddassa Medical Institutions, Dr. Ticho of the Jewish Medical Association, Dr. Hajjar and Miss Scott of the Government Hospital, Drs. Kosheshian and Mallof of the District Health Office, Dr. and Mrs. Neumann of Bikur Holim Hospital, Charles Michlin and daughter of Misgab Ladach Hospital, Dr. and Mrs. Litvak, Dr. and Miss Tannous and many others.

NATIONAL COLLOID RESEARCH INSTITUTE.

Plans for a million dollar institute for research in colloid chemistry have been announced and are shown in the "News Edition" of *Industrial and Engineering Chemistry* of April 10. Our own Ex-President J. U. Lloyd had much to do with early development of the science and, in later years, Professor Ostwald has given recognition to the former as a precursor in the science. The Institute, it is said, will be located at a leading university, with the University of Wisconsin said to be making the strongest bid for it at this time.

THE CHARLES E. DOHME MEMORIAL LECTURESHIP.

In June 1916 Mrs. Charles E. Dohme of Baltimore generously offered to pay annually the sum of $1000.00 to the Trustees of the Johns Hopkins University to found a lectureship in memory of her deceased husband, Charles E. Dohme, the well-known pharmaceutical chemist of Baltimore, who was president of the American Pharmaceutical Association, 1898–1899. Dr. A. R. L. Dohme, also an A. Ph. A. ex-president, is a son of the former.

"The purpose of the lectureship is to promote the development of a more intimate relationship between chemistry, pharmacy and medicine. The lectureship is open to scientists from any part of the world and the selection of the lecturer is made by a committee representing the departments of pharmacology, chemistry and medicine, and consisting of Professors Abel, Reid and Thayer.

"A provision of the gift reads as follows: 'My preference is to have the lectures delivered annually, but should a suitable lecturer at any time not be considered by the committee to be available, my suggestion would be that the income of the fund for that year be used to defray the expenses of a research upon a subject germane to the general subject of chem-

istry as applied to medicine. This research is to be published in some leading chemical as well as medical journal, and whatever results may ensue of benefit to science or industry shall be available for any and everyone.' "

The second course of lectures on this foundation was given by Julius Stieglitz, Ph.D., Sc.D., Chem.D., Chairman of the Department of Chemistry, professor of chemistry in the University of Chicago, in the Medical Amphitheatre, Johns Hopkins Hospital, May 12, 13 and 14, 1924. The title of the lectures was "Chemistry and Recent Progress in Medicine." The lecturer presented his subject from the point of view of preparative chemistry and physical chemistry and closed with a consideration of oxidation in the animal body from a physical-chemical standpoint. The lecturer of last year was Prof. H. J. Hamburger, of the University of Groningen, on "The Increasing Significance of Permeability Problems for the Biological and Medical Sciences."

"GLORY ENOUGH FOR ALL."

Colonel J. R. Kean, of Medical Corps, Washington, criticizes a contribution to a current magazine entitled "Yellow Fever Meets Its Master" by Marie Doughty Gorgas and Burton J. Hendrick. The admirable and convincing series of experiments of Major Walter Reed are not given full value in the article. A number of erroneous statements are claimed; one, for instance, is the intimation that the methods of warfare against the mosquito were unknown until devised and put into operation by Gorgas about February 15, 1901. Colonel Kean points out that the distinguished entomologist, L. O. Howard, had made use of kerosene to control mosquito breeding. Under the stimulation of Reed's influence the chief surgeon of the Department of Western Cuba had on October 15, 1900, three months before the acceptance by Gorgas of the mosquito theory, published a circular to medical officers calling attention to the fact that mosquitoes were known to convey malaria and filarial disease and were suspected of conveying yellow fever also and directing the prevention of mosquito breeding by the use of kerosene on deposits of water. Other references are cited and also a quotation from a letter by Surgeon General Gorgas to Major Reed as follows: "I am very happy to shine in the more humble rôle of being the first to put your discovery to extensive practical application." The letter of Colonel Kean closes with the following paragraph: "The fame of Gorgas is secure in the performance of the greatest feat of sanitary administration that the world has seen. It does not need any augmentation by claiming for him what belongs to his brilliant and unrewarded friend, Walter Reed."

Hume: Bechamp or Pasteur? A Lost Chapter in the History of Biology, by E. Douglas Hume. Covici-McGee, Chicago, publishers, 1923.

Much credit that is generally given to M. Louis Pasteur is ascribed by E. Douglas Hume, the author of the book, to Professor Pierre Jacques Antoine Bechamp. There is no question but what Bechamp was a remarkable man, a master of pharmacy, a doctor of science and a doctor of medicine. He was professor of medical chemistry and pharmacy at Montpellier and taught physics and toxicology at Strassbourg. He was also professor of biological chemistry at Lille and there is no question but what all scientific research aids scientists in their work and so there is no desire to deny the influence that this scientist had on Pasteur; however, we are not inclined on account of his investigations to place a lesser value on the work of Louis Pasteur. There is much interesting documentary material collected in this book; in our opinion, however, it must be read with considerable care in order not to be misled. The historical points are very interesting and the comparison of certain records are not without value in placing an estimate on the work of both of these scientists.

The following monographs have been received through the kindness of our honored member, Professor Emile Perrot: "The Medicinal Plants of Brittany," by Professor Lucien Daniel and Professor Emile Perrot; "Tea, Origin, Culture, Preparation, Commerce," by Professor Emile Perrot; "The Production of Vegetable Drugs, Both Indigenous and Cultivated," by M. Perrot and G. Blaque.

From the office National des Matieres Premieres Vegetale Pour la Drougerie and Parfumerie, Paris, the following have been received: "Catalogue of Official Drug Yielding Plants and Plants Yielding Medicinal Drugs," by L. Bruntz and M. Jaloux, both of the University of Nancy; The Second National Congress for the Culture of Medicinal Plants," held at Bourges June 18, 1922, of which the honorary president is Professor Emile Perrot. The book contains a report of G. Blaque on Drug and Perfume Plants and one by E. Poher, member of the committee on medicinal and perfume plants.

THE PHARMACIST AND THE LAW.

THAT PHARMACY IS NOT A PROFESSION PROTESTED BY NEW YORK PHARMACISTS.

New York immigration authorities have ruled that pharmacy is not a recognized profession and, therefore, foreign-born persons following that vocation are not permitted entry into this country under the professional provisions of the immigration laws. Officials of various New York state pharmaceutical societies have wired protests to the ruling to Senator Royal S. Copeland who has been asked to carry an appeal to the Department of Labor.

TEST WISCONSIN FOOD LAW.

A friendly test case has been instituted in the Wisconsin supreme court by J. Q. Emery, state food and drug commissioner, against three Milwaukee manufacturing concerns. The suit will determine the validity of the Wisconsin pure food law, which is now being questioned for the first time. The test will involve the manufacture and sale of vanilla extracts by the Milwaukee firms, and the use of artificial colorings in such extracts. If it is found that the provisions applying to this particular case are not valid, it is pointed out that many provisions of the law which affect the ingredients of syrups and soda fountain products, will also be invalid. The Wisconsin statute is fashioned after those in other states where test cases have already been held.

MEDICAL TESTIMONY RELATIVE TO THERAPEUTIC VALUE PERMITTED.

The District of Columbia Court of Appeals held, May 5, that the Department of Agriculture has the right to introduce in proceedings to condemn mislabeled goods expert medical testimony to prove that the contentions of the manufacturer with regard to the therapeutic value of the merchandise are exaggerated. The case arises in libel proceedings begun against a shipment of pills made by the Chichester Chemical Co.

MAY DISCRIMINATE AGAINST CO-OPERATIVE ORGANIZATIONS.

Manufacturers may refuse to give co-operative buying organizations the same special discounts given to chain stores, according to a decision of the U. S. Circuit Court of Appeals (New York), May 5. The decision sets aside an order of the Federal Trade Commission which directed the National Biscuit Company and the Loose-Wiles Biscuit Company to allow independent grocers who had formed into groups to buy their products the same discounts as those allowed to chain stores. The discounts range from 5 to 15 per cent., depending on the amount of the purchase, and the contention was that independent grocers were discriminated against because their purchases were much smaller than those who bought for a large number of stores.

BLACKLEG VACCINE WILL NOT BE PRODUCED BY THE GOVERNMENT.

A bill passed by the House of Representatives containing a $30,000 appropriation for the Bureau of Animal Industry for the manufacture and distribution of blackleg vaccine for use in fighting cattle disease has been changed by the Senate committee; the fund will be provided for the purchase and distribution of such vaccine at approximate cost, a revolving fund being established for that purpose. There is understood to be a difference of opinion among biological houses as to the merits of this provision, some of them object to the government going into business at all, even if only as a distributor.

FORMER COCO COLA COMPANY SUED FOR SIX MILLION DOLLARS.

Suit has been filed in the United States District Court at Atlanta for $6,833,469 against the Coca Cola Company of Georgia alleging unpaid income and excess profits taxes for 1919 and a 50% penalty assessed by the Commissioner of Internal Revenue for alleged making of a fraudulent and false return. The suit, it was explained by company officials, is against the old Coca Cola Company and not against the present corporation.

DECREASED IMPORTATION OF OPIUM.

A Washington report states that the importation of opium from 471,000 pounds annually for the ten-year period prior to the effective date of the Harrison Narcotic Law in 1915 has decreased to slightly less than 136,000 pounds in 1922. The importation of coca leaves decreased from 626,341 pounds in 1920 to 342,260 pounds in 1923.

NARCOTIC CONFERENCE FUND VOTED.

An appropriation of $40,000 has been voted by the Senate to enable the U. S. Government to participate in the International Conferences at Geneva next November with a view of bringing about curtailment of the production of opium and coca leaves. The representatives of the United States are directed to sign no agreement which does not fulfill the conditions necessary for the supervision of the habit-forming drug traffic as set forth in the preamble of the Porter resolution.

BOOK NOTICES AND REVIEWS.

Foibles and Fallacies of Science. An Account of Celebrated Scientific Vagaries. By Daniel W. Hering, C.E., Ph.D., LL.D., Professor Emeritus of Physics and formerly Dean of the Faculty of the Graduate School, New York University; Fellow of the New York Academy of Sciences, the American Physical Society, etc., etc. $5^1/_2$ x $8^1/_2$. Illustrated, 294 pp. Cloth, $2.50. D. Van Nostrand Co., New York, 1924.

The author is a well-known physicist and scientist who served as head of his department at the New York University for many years. He is the author of "Essentials of Physics," a university textbook and of a number of articles and books on scientific subjects of popular interest. This, his latest book, displays a strength of treatment and lucidity that mark it as unique among popular books on semi-scientific subjects.

The actual scope of the volume may be seen from the following chapter headings: Astrology, Almanacs, Transmutation of Metals, Perpetual Motion, Overturning of Scientific Hypotheses, Divination, Geographic Mania, Hoaxes, Prophecies, Charlatanism, Radiation, Other Ancient Chimeras. An extensive experience in the study and teaching of physical science has brought the author into contact with so much pseudo-science posing as genuine, that it seemed to him worth while to write out in some degree of completeness an account of several foibles in which a few specific instances might serve as types to illustrate whole classes of vagaries. Some are of ancient origin and practice but they still survive and reveal a never-ending struggle against ignorance, credulity and audacity.

The book is well illustrated, the title illustration being "Emperor Rudolf II in the Laboratory of his Alchemist at Prague," a reproduction from the original in the Art Gallery of the New York Public Library and painted by the Bohemian artist, Nacslao Broszik, compatriot of Emperor Rudolf.

The work is really a serious study of pseudo-science, an absorbing account of celebrated vagaries of science and interesting stories of queer theories. It is intended both for the layman in science and the professional student to whom we can highly recommend it. Pharmacists will also find much interesting matter in the book with which they should become familiar.

OTTO RAUBENHEIMER, PH. M.

Aids to Practical Pathology. By F. W. W. Griffin, M.A., M.D., B.C. (Cantab.), M.R.C.S. (England), L.R.C.P. (London), Assistant Pathologist, Virol Pathological Research Laboratories. Late Capt. R. A. M. C. Pathologist, formerly Tuberculosis Officer, County of Surrey, etc., and W. F. M. Thompson, Chief Technical Assistant, Virol Pathological Research Laboratories, etc. 246 pp. and 8 illustrations. Cloth, $1.50. New York, William Wood and Co., 1923.

In view of the prominent place taken to-day by clinical pathology in the diagnosis and treatment of disease the little book before us, a compact and classified summary of the practical side of the work, will be found very useful. It is a record of long personal and practical experience by the two authors and only those tests are included which have been in constant use and have been found to be reliable.

Special attention is paid to the chemistry and bacteriology of urine and blood, the importance of which is more and more recognized. The section dealing with gastric contents includes the very important method of fractional analysis, which is undoubtedly the most modern and satisfactory procedure in this particular field.

The Table of Contents and the Index have been very carefully compiled so that any detail required can be traced without any difficulty. The size of the book is so that it will fit the pocket and laboratory table rather than the library shelf. It is full of useful practical information and we can highly recommend this inexpensive book to pharmacists, physicians, chemists and students.

OTTO RAUBENHEIMER, PH. M.

Textbook of Chemical Toxicology and Guide to the Detection of Poisons (in German), prepared for pharmacists, chemists, and physicians by Dr. J. Gadamer, o. Professor of Pharmaceutical Chemistry at the University of Marburg. Second enlarged edition, Quarto, X + 714 pages, with ten double page folded tables, 1 colored plate, 1 plate of blood spectra and 36 figures and photographs in the text. 1/4 cloth. Vandenhoeck & Ruprecht, publishers, Göttingen, 1924.

This is the second edition of a work first published in 1909. The first edition in turn was based upon Dragendorff's early work, "Forensic-Chemical Treatise on Poisons," together with over ten years of painstaking experimental work in checking many of the chemical tests in the work, by Prof. Gadamer and several collaborators.

Besides a well-written introduction of a few pages, conditions influencing the definition of a poison are discussed; the body of the work includes, first, a general part of about a dozen pages, second, the special part, comprising the main portion of the volume, of over six hundred pages, and finally an additional part of about fifty pages. The first of these is devoted to a general discussion of the responsibilities of the chemical toxicologist to society, general rules for forensic analyses, the avoidance of the accidental introduction of poisons into the material under examination, testing of reagents, rules for conducting the analyses, and interpretation of results.

The special part is first divided into inorganic and organic poisons. The inorganic poisons in turn are subdivided into several main groups: (1) free halogens, ozone, nitrogenous compounds, carbon monoxide, etc.; (2) phosphorus; (3) anion reactions, free mineral acids, hydroxyl ions, hydroxylamine salts, etc.; (4) decomposition of organic material, analysis to determine the presence of metals, determination of the form of combination, electrolysis, and the individual metallic poisons, *e. g.*, arsenic, antimony, tin, lead, mercury, etc. The organic poisons are divided into the following main groups: (1) volatile poisons, including hydrocyanic acid, halogen compounds volatile with steam and carbon disulphide, alcohols, aldehydes, ketones, phenols, etc.; (2) non-volatile poisons, divided into amido nitrogen-free and amido nitrogen-containing non-volatile poisons, the former including among others picrotoxin, santonin, cantharidin, purgatives and drastic cathartics, glucosides and saponins, the latter xanthine bases, veronal, purine derivatives, and the alkaloids and ptomaines.

The additional part embraces the series of ten tables for a systematic procedure of investigation for the recognition of nitrogenous medicinals, a section on German legal statutes, another on the testing of reagents with many references, and finally a table of blood spectra. The appended color plate relates to the qualitative and quantitative determination of arsenic by the method of Smith by Beck and Merres. The book contains a well-arranged table of contents and a serviceable subject index, but no author index.

The book is plainly the result of very careful work and has several admirable features. The handling of every topic is characterized by thoroughness and by systematic treatment. Its citations of the literature are numerous and up to date. The systematic scheme for the recognition of organic nitrogen-containing medicinals in the ten tables of the third part constitutes a valuable addition and distinctly new departure in this field of work. Tables I to V furnish a qualitative scheme for the detection of nitrogenous medicinals without heavy metals, arsenic, sulphur or halogens. Tables VI to IX, inclusive, present schemes for nitrogenous medicinals with sulphur, bromine, iodine and sulphur without halogens, respectively, while Table X is for those containing besides nitrogen also arsenic, silver, mercury, bismuth or iron. This extensive scheme is supplemented by auxiliary tables of melting points of an unusually large number of synthetic and natural nitrogenous medicinal substances with handy cross references to their places in the main scheme. A similar scheme, it is explained, is in preparation for the less generally forensic important class of nitrogen-free medicinals.

The comprehensiveness of the work makes it attractive to a large number of workers in related fields as well as to students. It includes excellent chapters on the ptomaines, their occurrence, constitution, and preparation; on an unusually large number of alkaloids and related substances, on food and plant poisons, and other related topics. It appears to cover its field more thoroughly than any other single volume and there is every reason to expect that it will be very well received.

The quarter cloth covers are too light for a volume of the size and character of this one. A statement on the paper wrapper indicates

that other more substantial styles are available. Otherwise the binding is excellent. The printing includes a variety of styles of type and spacing, is well laid out on the page, and is easy to read. Only one, a minor, typographical error was noticed.

H. W. VAHLTEICH.

PUBLICATIONS RECEIVED.

Proceedings of the American Drug Manufacturers' Association. Twelfth annual meeting April 16–19, 1923. The book contains over 300 pages and is divided into five parts. Part I contains abstracts from business sessions; Part II, of the Scientific Section; Part III, of the Pharmaceutical Section; Part IV, Memorials; and Part IV, Appendix—constitution and by-laws, membership, etc. The first three parts have an interest for pharmacists and particularly II and III wherein such subjects as assay, standardization, crude and milled drugs are reported. Excellent halftones of President Alfred S. Burdick and Secretary Carson P. Frailey adorn the first two pages.

Abstract of the Proceedings of the U. S. Pharmacopœial Convention, 1920. Compiled and edited by Secretary Lyman F. Kebler and published by the Board of Trustees, Washington, 1923. A halftone of Dr. Harvey W. Wiley, president of the U. S. Pharmacopœial Convention, and that of the late Professor Joseph P. Remington, chairman of the Committee of Revision, July 6, 1901 to January 1, 1918, constitute the frontispiece of the proceedings. The introductory gives a brief historical account of the U. S. Pharmacopœia followed by articles of incorporation and that by the officers and committees for the revision of 1920–30. The report contains an abstract of the meetings, constitution and by-laws, financial reports, list of delegates to the convention and the general principles to be followed in revising the Pharmacopœia. The compilation reflects credit on the Secretary.

Popular Science Talks. A series of popular lectures on twelve interesting topics published by the Philadelphia College of Pharmacy and Science. Price, $1.00. Several articles are well illustrated, Hippocrates, Aesculapius and Paracelsus are shown in full-page halftones; also quite a number of illustrations of plants accompany the lecture on "Animal-Eating Plants" by Professor Heber W. Youngken; the "Romance of Spices" by Dean Charles H. LaWall has a number of interesting etchings; likewise that of the "Story of Glass" by Dean J. W. Sturmer and "Chemistry as an Aid in the Detection of Crime" by Dr. Henry Leffmann. In delivering these lectures many slides were used and the audience present was composed chiefly of pharmacy patrons and not members of the profession. Other subjects of the lectures than those named are "Corn and Its Products," Prof. Freeman P. Stroup; "Bacterial Preparations in Common Use," Prof. Louis Gershenfeld; "Another Drop of Blood," Prof. Ivor Griffith; "Catalysis and Catalysts," Dr. Samuel P. Sadtler; "The Aluminum Age," Prof. Ralph H. Foran; "Explosives and Explosions," Dr. Henry Leffmann;" "The Making of Medicines," Prof. E. Fullerton Cook; "Iron and Iron Alloys," Prof. Frank X. Moerk.

Proceedings of the 20th Annual Convention of the National Association of Boards of Pharmacy held in Asheville Sept. 3–4, 1923. The frontispiece of this issue of the proceedings is a picture of Edward H. Walsdorf, president of the Association 1922–1923. The volume contains the usual matter of other issues, the president's address, the secretary's and the treasurer's reports and reports of the various boards of pharmacy, also the proceedings of the joint meeting with the American Conference of Pharmaceutical Faculties. The volume contains over 200 pages, replete with information relating to boards of pharmacy and reflects credit on Secretary H. C. Christensen.

The 30th Annual Report of the State Board of Pharmacy of Colorado for the year ending July 2, 1923. The report contains also a list of registered and assistant pharmacists and apprentices in pharmacy and a directory of stores, proprietors and managers engaged in the retail drug business in Colorado; also state and federal laws applying to the drug business.

Proceedings of the 42nd Annual Meeting of the Nebraska State Pharmaceutical Association held at Hastings June 12–14, 1923.

Proceedings of the 17th Annual Meeting of the West Virginia State Pharmaceutical Association held at Deer Park, Md., June 26–28, 1923.

Bulletin No. 1, Research on Operating Costs in Northwest Drug Stores, by J. H. Ostlund, Department of Accounting, School of Business, University of Minnesota. Printed jointly by the *Northwestern Druggist* and the Northwestern Pharmaceutical Bureau. E. L. Newcomb is president of the latter and Al Falkenhainer is

the secretary. The compilation is a very useful one and gives information that will be of service to all pharmacists who standardize their stores according to business methods.

Reprints. "The Correct Name for the Spearmint" by Oliver Farwell reprinted from the *Rhodora.*" "On the Theory of the Lyophilic Colloids and the Behavior of Protoplasm" by Martin H. Fischer, reprinted from Colloid Symposium Monograph and published by the Department of Chemistry, University of Wisconsin, 1923. "Observations on Reputed Dysentery Remedies" by T. A. Henry and H. C. Brown of the Wellcome Research Laboratories and Bureau of Scientific Research, a paper presented at a meeting of the Royal Society of Tropical Medicine and Hygiene, January 17, 1924, and reprinted from its Transactions.

Report of Wuhu General Hospital, 1922–23, Wuhu, China, published by the Oriental Press, Shanghai, China. The report has been sent to us by Prof. C. O. Lee. His name appears among those of the hospital staff. The report is largely concerned with the number and kind of cases treated in the hospital during the year.

Report No. 860 of the U. S. Public Health Service. "The Mechanism of the Action of Arsenic upon Protoplasm" by Carl Voegtlin, Helen A. Dyer, and C. S. Leonard of the Hygienic Laboratory, U. S. Public Health Service.

Department Bulletin No. 1201 of the U. S. Department of Agriculture. "Plants Tested for or Reported to Possess Insecticidal Properties" by N. E. McIdoo and A. F. Sievers; the former is insect physiologist of the Bureau of Entomology and the latter is chemical biologist of the office of the Drug, Poisons and Oil Plant Investigations of the Bureau of Plant Industry.

Proceedings of the American Conference of Pharmaceutical Faculties of the 24th annual meeting held in Asheville. This volume contains the report of the proceedings of the American Conference of Pharmaceutical Faculties, the names of the member institutions, etc. The addresses and papers presented at the last annual meeting are also included. Among these are the addresses of President Charles H. LaWall, of Dr. H. W. Chase of the University of North Carolina, and papers on "Chemical Education in Pharmacy Schools" by John C. Krantz, Jr.; "Laboratory Management" by Leon M. Monnell and "The Imperative Need of Higher Educational Standards" by Frederick J. Wulling. Fifty-one colleges of pharmacy now hold membership in the Conference. The 1924 meeting will be held in Buffalo during the last week of August.

"GO PUT YOUR CREED INTO YOUR DEED."

"The coming generation of pharmacists keenly appreciates the value of consolidating drug interests. In the drug store and in the college, hundreds of questions are asked daily about the problems of the retail pharmacist. These young men and women are giving serious thought to their future life work. They realize the necessity for action at this time towards federating drug interests and centralizing power and influence. This is well evidenced by their unanimous support to the Pharmacy Headquarters Building Campaign...."

"The objectives of the Headquarters Building Campaign have already been placed before the students in six different colleges of pharmacy. Some thirty other colleges are taking up the subject as these lines are being written. Practically 100 per cent. coöperation has been given by all students to whom the campaign has been presented. Individual subscriptions of from $25.00 to $100.00 have been the rule, all payable over a term of five years, and including one year's free membership, with JOURNAL and YEAR BOOK, in the American Pharmaceutical Association.

"Attention has previously been called to the fact that the students and drug clerks of to-day will be the pharmacists of to-morrow. To these young men and women will accrue the greatest benefit from the Pharmacy Headquarters Building. The splendid subscriptions which have already been made by the clerks and students is a recognition on the part of this body, not only of the value of the undertaking, but of their faith in the future of pharmacy. Every drug store proprietor in the country has a duty to perform in recognition of what the coming generation of pharmacists has already done. That duty is to subscribe to the Headquarters Building project quickly and liberally. Send in your subscription now!"